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Increasing Responsiveness of the Army Rapid Acquisition Process: The Army Rapid Equipping Force

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June 2011

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The project establishes a baseline and analyzes the implications of existing policies, processes, and practices for executing rapid acquisition programs. It draws conclusions and offers recommendations for continuing improvements towards a more modern and responsive rapid acquisition process. The findings indicate that the Army REF is adapting and evolving processes to better respond to the urgent needs of its operational commanders and the warfighter that can be applied by traditional acquisition organizations.

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INCREASING RESPONSIVENESS OF THE ARMY RAPID ACQUISITION PROCESS: THE ARMY RAPID EQUIPPING FORCE

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The project establishes a baseline and analyzes the implications of existing policies, processes, and practices for executing rapid acquisition programs. It draws conclusions and offers recommendations for continuing improvements towards a more modern and responsive rapid acquisition process. The findings indicate that the Army REF is adapting and evolving processes to better respond to the urgent needs of its operational commanders and the warfighter that can be applied by traditional acquisition organizations.

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> *It is not the critic who counts: not the man who points out how the strong man stumbles or where the doer of deeds could have done better. The credit belongs to the man who is actually in the arena, whose face is marred by dust and sweat and blood, who strives valiantly, who errs and comes up short again and again, because there is no effort without error or shortcoming, but who knows the great enthusiasms, the great devotions, who spends himself for a worthy cause; who, at the best, knows, in the end, the triumph of high achievement, and who, at the worst, if he fails, at least he fails while daring greatly, so that his place shall never be with those cold and timid souls who knew neither victory nor defeat.*[1]

HOOAH!

[1] Theodore Roosevelt, "Citizenship in a Republic," speech at the Sorbonne, Paris, April 23, 1910.

EXECUTIVE SUMMARY

Department of Defense rapid acquisition activities have developed processes and best practices, learned critical lessons and evolved over the last nine years in order to operate effectively in the current Overseas Contingency Operation (OCO) environment. As a result, there exists an opportunity for the greater acquisition community to leverage these processes, best practices, and lessons learned to improve the Urgent Materiel Release (UMR) process executed by traditional acquisition organizations. The U.S. Army Rapid Equipping Force (REF) is a prime example of an organization that has overcome many of the institutional barriers and thrives within the constraints of the current policies and processes. It provides an example of innovation, flexibility and responsiveness that is worthy of study to determine what is appropriate for emulation by other organizations.

This project captured the Army's current applicable rapid acquisition policies and the processes, best practices and lessons learned through a review of the REF Office. It compared the processes and practices of the REF to the processes and practices executed by Joint Project Manager Nuclear, Biological, and Chemical Contamination Avoidance (JPM NBC CA) in support of an Urgent Materiel Release (UMR) program. The comparative analysis determined existing opportunities for the REF processes, best practices and lessons learned to improve the responsiveness of the Program Manager's (PM) streamlined acquisition.

The analysis examined the three DoD Decision Support Systems—Joint Capabilities Integration & Development System (JCIDS), Defense Acquisition System (DAS), and Planning, Programming, Budgeting & Execution System (PPBES)—utilizing the framework established in the Defense Acquisition Performance Assessment (DAPA) to focus the streamlined acquisition process improvement recommendations in the areas of Organization, Workforce, Budget, Requirements, and Acquisition. Selected REF best practices and processes from these areas were compared to the execution of the JNBCRS2 JUON effort to identify the following implementation opportunities to improve and streamline the traditional acquisition processes.

Requirements—JCIDS

- Create tiered categories below the ACAT III designation within JCIDS for rapid initiatives. Classify the tiers according to thresholds for the estimated cost and urgency of the acquisition effort and designate the levels of oversight and validation necessary.
- Incorporate a process similar to the REF 10-Liner to streamline and standardize submission process and aid in project classification.

Acquisition—DAS

- Develop rapid initiative specific guidance based on the REF's METT-TC-FLARS process to create a streamlined, repeatable process for conducting requirements analysis.
- Tailor the amount of testing and associated OA based on the urgency, technical maturity level and cost risk associated with the system(s) based on the tiered approach with more robust follow-on testing planned to confirm the effectiveness, suitability and survivability of the system(s).
- Incorporate TDEs conducted by the ATEC FOA teams as a risk reduction measure for the tiered approach provide forward operational assessments as part of the robust follow-on testing.
- Develop a standardized COP/project management system to provide situational awareness and visibility of projects across the three major acquisition systems (JCIDS, DAS, PPBES).

Budget—PPBE

- Establish a specific funding line for rapid acquisition projects that is not tied to specific "colors" of money.
- Develop funding threshold criteria that align with the tiered approach.

Workforce

- Increase the number of military acquisition professionals in PM organizations and develop a corps of civilian employees that has experience interacting with operational organizations.
- Maintain a rapid cell as a center of excellence that can advise and guide traditional acquisition organizations and provide training to PMs during rapid projects.
- Develop a core of subject matter experts in contracting for rapid acquisition projects.

Organization

- Reduce the level of decision authority and oversight for urgent needs projects based on a tiered approach organized according to the associated technical maturity level and cost risk of the effort.
- Incorporate LNOs from the requirements community into the PM offices to develop habitual relationships.
- Increase the number of ATEC LNOs within the PMs to increase the efficiency of test and evaluation activities.
- Transfer the operational contact team approach to the requirements community to increase responsiveness to emerging needs by reducing the lines of communication from the warfighter to the requirements community and increase efficiency for accurately capturing the information required to make informed decisions. Additionally, these teams should maintain habitual relationships with the PMs.
- Maintain the REF logistics group as a center of excellence for the fielding of urgent needs to provide guidance on the intricacies of urgent need system deployment to traditional PM logisticians.

These kinds of changes to improve effectiveness and responsiveness are not without risk. The problems that affect effectiveness and responsiveness have been identified multiple times and implementation criteria have even been defined by some; however, defining new processes and implementing institutional culture change in an organization like the DoD is extremely difficult. The current DAS is the product of over 50 years of evolution, and even though it has it flaws, it has produced some of the finest military equipment in the world; but, external factors are creating new rules of engagement which are forcing us to adapt quickly or be forced to fight with outdated and ineffective equipment and technology. The Army rapid acquisition processes, especially

those of the REF, have given us a window into what can be done within the established laws and regulations. Additionally, the T&E community has been transformed by the rapid acquisition process with smaller and earlier tests as opposed to the pass/fail operational test of the past. Items are being fielded as tests are ongoing, and the results of that testing are being applied to the next iteration of the system to be fielded.

The pioneering and creative processes and practices developed by the REF can be lasting legacies that serve the needs of the Army now and into the future if we capture them and take advantage of them now. The acquisition and T&E communities have an opportunity to use the REF processes, practices, and lessons learned to bring meaningful change to our rapid acquisition system and position us to maintain our dominance on the battlefields of the future.

I. INTRODUCTION

> The traditional defense acquisition processes, which include individual Services' acquisition processes, are designed primarily for major weapon systems costing billions of dollars in research, development, test and evaluation, as well as production, manufacturing, fielding and sustainment. Because of the enormous resource investment required and because of congressional scrutiny, program decisions tend to be deliberative and tied to budgetary priorities, schedules, and vagaries. Consequently, the materiel solutions developed can take up to 10 to 15 years to get into the hands of the warfighter.
>
> –Robert L. Buhrkuhl[2]

As Dr. Buhrkuhl states, our traditional defense acquisition processes are primarily designed for major weapons systems. The policies and processes that govern the activities of an acquisition program have become cumbersome with significant bureaucratic oversight due mostly to the exceptional costs associated with major weapons systems. The time necessary to complete all of the regulatory requirements and comply with all of the oversight requirements associated with these programs extends them across years of development, testing, and production. Inefficiencies, such as bureaucratic oversight, cost and schedule overruns, and poor system performance, in Government acquisition activities have long been the focus of efforts to improve the defense acquisition processes.

The Defense Acquisition Performance Assessment (DAPA) Project conducted in 2005 states that "one hundred and twenty-eight prior studies have been done over many years to address perceived problems with the system to prevent fraud, waste and abuse." Clearly, this large number of studies is an indicator that it is widely recognized that our acquisition processes have room for improvement. It also indicates that, despite the recognition of a problem, we still have not "broken the code" when it comes to changing the system in a significant and meaningful manner. Additionally, the DAPA project concluded that "the problems were deeply imbedded in many of the management systems

[2] Dr. Robert L. Buhrkuhl, USD (AT&L) Director of JRAC, "When the Warfighter Needs it Now," Defense AT&L Magazine Interview, Nov–Dec 2006.

we use in the Department of Defense (DoD), not just the traditional acquisition process. We need a radical approach to improvements that would make the process better and adapt these improvements to the new security environment of the 21st century."[3]

Four years later, the House Armed Services Committee appointed yet another group—the Panel on Defense Acquisition Reform (hereinafter "the Panel")—to examine the Defense Acquisition Process. This review was motivated by a sense on Capitol Hill that Defense Acquisition was not responsive enough to the warfighter's needs, not rigorous enough to track the taxpayer's investments and not disciplined enough in the acquisition of future force systems . The Panel found that Defense Acquisition has not kept pace with the drastic changes in the nature of defense acquisition, especially during a time of war. Similar to the findings in the DAPA report, the Panel found that significant improvements can be made in the following areas: the acquisition system; the requirements process; the acquisition workforce; the financial management system; and industry (i.e., getting the best of the industrial base).[4]

Within the Defense Acquisition System (DAS), the Program Manager's (PM) challenge is to balance cost, schedule and performance in order to deliver an affordable, timely and useful materiel solution to fill an identified capability gap. For major weapons systems that fall within Acquisition Category (ACAT) I, the policies and practices in place are quite rigid. The PM does not have much latitude when it comes to the required gates they must pass through to move to the next step of the acquisition process. As the ACAT level decreases, the PM is afforded more freedom to tailor his program, and his oversight requirements are reduced. Although policies and regulations allow more freedom for these programs, a risk averse culture among the stakeholders in the acquisition process often prevents the PM from taking advantage of this ability to tailor, or streamline, their program.[5] Instead, these smaller programs are often expected

[3] Assessment Panel of the Defense Acquisition Performance Project, Defense Acquisition Performance Assessment (DAPA) Executive Summary, December 2005, 2.

[4] House Armed Services Committee Panel on Defense Acquisition Reform Findings and Recommendations, Defense Acquisition Reform Final Report, March 23, 2010, 1.

[5] Joint Rapid Acquisition Cell Stakeholders Working Group, Joint Rapid Acquisition Improvement Initiative, 6 December 2006.

to get through the same gates without the resources or the impetus from outside stakeholders to execute the tasks necessary to negotiate them. As a result, the schedule and cost are often victims of the system, and in the current wartime environment, responsiveness has become a priority to maintain superiority and to provide the security required to our warfighters.

A. RAPID ACQUISITION AND OVERSEAS CONTINGENCY OPERATIONS

Since September 11, 2001 the global environment has changed significantly and the U.S. military has found itself engaged in Overseas Contingency Operations (OCO). The rules of engagement, tactics and technologies used in these conflicts have changed dramatically since the initiation of the offensives in Afghanistan and Iraq. The DoD went to war with the forces and equipment designed to fight a conventional, force-on-force conflict, but we have found ourselves battling a highly adaptable, asymmetric enemy. The operational environment is fluid and frustrating as the enemy adapts their tactics and applies available technologies quicker than we can adapt with materiel solutions produced through our traditional acquisition processes. The traditional Defense Acquisition process timeline of 5–15 years to deliver materiel solutions to the warfighters has become unacceptable.

General Petraeus, U.S. Central Command commander, recently stated, "Never, never underestimate how important speed is. We need what we need now. As a threat emerges, we need to counter it rapidly."[6] Rapid acquisition has become a critically important organizational capability necessary to support our warfighters, and that capability has matured and evolved during the contingency operations in Iraq and Afghanistan.

The OCOs have highlighted the institutional challenges that the DoD faces in satisfying the urgent and critical needs of our combatant commanders. In an effort to breakdown institutional barriers that prevent timely delivery of effective materiel

6 General David Petraeus, "Adaptive, Responsive and Speedy Acquisitions," *Defense AT&L Magazine*, Jan-Feb 2010, 5.

solutions to the warfighter, the Secretary of Defense directed the creation of the Joint Rapid Acquisition Cell (JRAC) in 2004.[7] As a result, the Department of the Army as well as the other Services recognized the need to be more responsive to the combatant commanders and established Service specific rapid acquisition activities.

These rapid acquisition activities have developed processes and best practices, learned critical lessons and evolved over the last nine years in order to operate effectively in the current OCO environment, and there is an opportunity for the greater acquisition community to leverage these processes, best practices, and lessons learned to improve the Urgent Materiel Release (UMR) process executed by traditional acquisition organizations. The U.S. Army Rapid Equipping Force (REF) is a prime example of an organization that has overcome many of the institutional barriers and thrives within the constraints of the current policies and processes. It provides an example of innovation, flexibility and responsiveness that is worthy of study to determine what is appropriate for emulation by other organizations.

B. RESEARCH SCOPE

This project captures the Army's current applicable rapid acquisition policies and the processes, best practices and lessons learned through a review of the REF Office. It compares the processes and practices of the REF to the processes and practices executed by Joint Project Manager Nuclear, Biological, and Chemical Contamination Avoidance (JPM NBC CA) in support of an Urgent Materiel Release (UMR) program. The comparative analysis will determine where opportunities existed for the REF processes, best practices and lessons learned to improve the responsiveness of the PM's streamlined acquisition.

The scope of the data collection included information from several different sources. The research focuses on documents and information available through open sources such as: magazine articles; established policies and laws; the DAPA report; the Panel on Defense Acquisition Reform findings and recommendations; Army Audit

[7] Paul Wolfowitz, Deputy Secretary of Defense, Memorandum, SUBJECT: Joint Rapid Acquisition Cell (JRAC), 3 September 2004.

Agency and U.S. Government Accountability Office reports. Additional information was gathered from interviews with the stakeholders: the REF Director and Team, the Army Test and Evaluation Command (ATEC), and the team lead for the Joint Nuclear, Biological, and Chemical Reconnaissance System Increment 2 (JNBCRS2) Joint Urgent Operational Needs (JUON) effort. These interviews played a critical role in providing information on the REF processes and best practices and the establishment of the case study.

C. RESEARCH OBJECTIVE

Among many recommendations, the DAPA report identified a change from a focus on delivering 100% performance in the first production lot to a focus on delivering useful military capability within a constrained period of time as a key acquisition performance improvement.[8] That capability can then be upgraded incrementally as technologies mature and operational requirements become clearer. General Petraeus confirmed an operational concurrence of this approach by stressing the need for providing an 80% solution today that can be used now rather than waiting months or years to get a 100% solution.[9]

The REF model provides an example of how an organization can effectively implement this approach within the constraints of current policy. It provides an opportunity to examine the capabilities and limitations that the Army acquisition community might encounter if they implement the DAPA and the Panel for Acquisition Reform recommendations within the traditional acquisition process. In order to leverage this opportunity, this research paper will answer the following questions:

1. Primary Research Question

What Army REF processes, practices and lessons learned should be considered by the Army within its streamlined acquisition process—Urgent Materiel Release (UMR) Process—to increase responsiveness to the warfighter?

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[8] DAPA Executive Summary, 12.

[9] Petraeus, 5.

2. Secondary Research Questions

a) Does the Army have clear policies and guidelines in place regarding management of rapid acquisition items?
b) What processes has the REF implemented to ensure responsiveness?
c) How do REF processes and practices compare to a streamlined acquisition case?

D. METHODOLOGY

The project documented the current processes of the Army REF, presented a case study of a UMR executed by a traditional acquisition organization, and utilized the framework created in the DAPA report to establish a comparison between a streamlined acquisition program (UMR) and the REF processes and practices to identify opportunities for improvements within the streamlined acquisition process.

The analysis examined all three DoD Decision Support Systems—Joint Capabilities Integration & Development System (JCIDS), DAS, and Planning, Programming, Budgeting & Execution System (PPBES)—utilizing the framework established in the DAPA to focus in the areas of Organization, Workforce, Budget, Requirements, Acquisition, and Industry (Figure 1). Selected REF best practices and processes from these areas were compared to the execution of the JNBCRS2 JUON effort to identify implementation opportunities to improve and streamline the traditional acquisition processes.

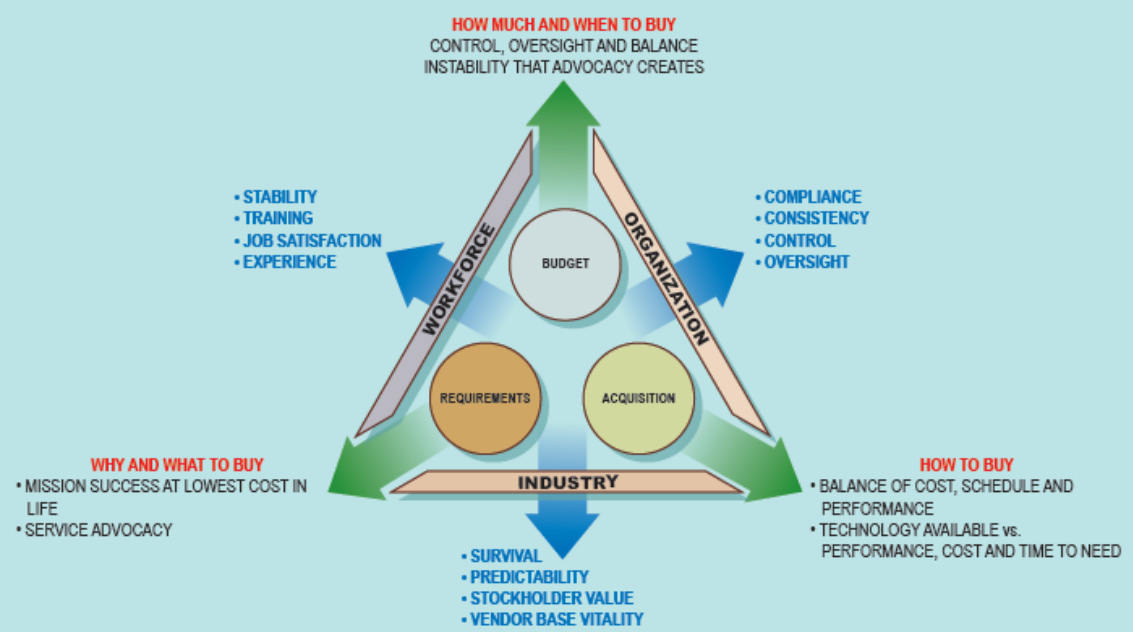

Figure 1. DAPA Framework[10]

E. ASSUMPTIONS

The authors operated under several assumptions in the conduct of the analysis. First, this analysis will not be all inclusive. It is geared toward rapid acquisition efforts with significant resource limitations. This limited the applicability to programs or efforts that take advantage of Commercial Off-the-Shelf (COTS) items, Government Off-the-Shelf (GOTS) items and items that require minimal changes and or improvements. Additionally, they made the decision that they would focus on the operation of one rapid acquisition organization to keep the scope of the project at a manageable level. In this case, the authors limited their research to the analysis of the policies and practices employed by the Army REF Office. They also limited their data collection to information, policies and practices in place as of June 2010. Because of the fluidity of current operations, policies and practices are continually evolving.

Finally, the case study uses a recent JUON effort, the JNBCRS2 UMR, to provide a comparison with the REF processes and best practices. The analysis draws conclusions on how an acquisition program might incorporate select REF practices and processes to

[10] DAPA Executive Summary, 4.

improve responsiveness. Two limitations to this approach are evident: while the requirements for each type of program are similar, there is still a difference in the concepts of fielding vs. equipping; and the analysis assumes that the JNBCRS2 JUON effort is representative of a typical UMR.

F. ORGANIZATION

Because the focus of this report is on the REF processes and best practices, it was necessary to establish the purpose and role of the REF within the Army and to define the best practices and processes that the REF has developed to increase responsiveness to the needs of our warfighters. It is important to note that the REF processes analyzed in this report are not the same as those utilized by the REF in first years after the inception of the organization in 2002. They represent the processes that developed over the last 3 years as the REF evolved and matured into an organization more aligned with traditional acquisition processes.

The report is divided into seven chapters. The INTRODCUTION chapter provides some insight into the motivation for the project. It establishes the scope and methodology of the research. It also provides the organization of the paper and some basic assumption governing the research.

The second chapter, BACKGROUND, introduces the current structure of the rapid acquisition organizations created specifically to respond to urgent capability requirements. Additionally, it provides an understanding of the REF's role in that community.

The third chapter, POLICIES, examines the existing policies that apply to rapid acquisition. It also answers the secondary research question: Does the Army have clear policies and guidelines in place regarding management of rapid acquisition items?

The fourth chapter, PROCESS, documents the REF process. It establishes the basis for comparison with the traditional UMR. Additionally, it answers the secondary

research questions: Does the Army have clear policies and guidelines in place regarding management of rapid acquisition items; and what processes has the REF implemented to ensure responsiveness?

The fifth chapter, CASE STUDY, documents a traditional UMR process executed by the JPM NBC CA. This chapter provides the basis for comparison with the REF processes in the analysis section.

The sixth chapter, ANALYSIS, compares the REF processes with the traditional UMR process. It answers the secondary research question: How do REF processes and practices compare to a streamlined acquisition case?

The final chapter, CONCLUSIONS AND RECOMMENDATIONS, provides the answer to the primary research question: What Army REF processes, practices and lessons learned should be considered by the Army within its streamlined acquisition process—Urgent Materiel Release (UMR) Process—to increase responsiveness to the warfighter?

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II. BACKGROUND

A good battle plan that you act on today can be better than
a perfect one tomorrow.

General George S. Patton[11]

The current conflict has challenged the Armed Services with an unconventional style of persistent warfare taking place in the midst of a civilian population. The operational environment has become incredibly complex, and the tactical situation has evolved rapidly. The Army, as well as the other services, has struggled to adapt to the constantly changing capability requirements of the current conflicts while simultaneously modernizing the force for future conflicts. Traditional defense acquisition is well suited for the large, deliberate weapons programs designed for the future force, but it is not as responsive to the changes required by the force fighting the current war.

Historically, the institutional Army has not been as adaptive as the operational Army due to an environment that is constrained by laws, regulations, policies and scarcity of resources. Authorities to streamline acquisition actions to meet urgent needs have long been in place, and the individual services have processes in place to facilitate them. Unfortunately, "the fear of being drawn and quartered for an error in bureaucratic process" has slowed the process and contributed to a limited willingness to use these existing authorities.[12]

The OCO has forced the maturation and evolution of these processes, and it has given rise to new organizations. During the examination of these processes and policies, it is helpful to understand the structure of the rapid acquisition organizations and a bit about their history.

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[11] General George Patton, Great-Quotes.com, Gledhill Enterprises, 2011, http://www.great-quotes.com/quote/837763.

[12] Michael W. Middleton, "Assessing the Value of the Joint Rapid Acquisition Cell," Naval Postgraduate School Thesis, December 2006, 6.

A. JOINT RAPID ACQUISITION CELL (JRAC)

The JRAC is the DoD level organization created to assist with the resolution of issues impeding the urgent materiel and logistics requirements that combatant commanders have certified as operationally critical. The JRAC is responsible for identifying issues and potential solutions for satisfying urgent operational needs that have been designated as Immediate Warfighter Needs (IWNs). Additionally, it provides a single point of contact and accountability on the Office of the Secretary of Defense staff for tracking the timeliness of these actions. IWNs are high visibility Joint Urgent Operational Need Statements (JUONS) that require resolution and capability fielding within 120 days. If left unfulfilled, the IWNs could result in the loss of life or mission failure.

B. ARMY ASYMMETRIC WARFARE OFFICE (AAWO)[13]

At the Service level, the AAWO is tasked with the integration of military and civilian disciplines to rapidly organize, train and equip Army formations to defeat asymmetric threats while simultaneously leading change in the Army's culture toward a more adaptive force. The Army established the AAWO to be the Army's focal point for all asymmetric warfare initiatives -to include development of the Army's policy planning efforts in asymmetric warfare- and serve as its link to the Joint Improvised Explosive Device Defeat Organization (JIEDDO).

The AAWO has two subordinate organizations: the Asymmetric Warfare Group (AWG) and the REF. Each of these organizations has a unique mission.

1. Asymmetric Warfare Group (AWG)[14, 15]

The AWG is an Army special mission unit that conducts operational advisory assistance to Army and Joint Force Commanders. It enables the identification of

13 *2010 Army Posture Statement,* Army Asymmetric Warfare Office (AAWO), https://secureweb2.hqda.pentagon.mil/vdas_armyposturestatement/2010/information_papers/Army_Asymmetric_Warfare_Office_(AAWO).asp.

14 Asymmetric Warfare Group webpage, http://www.awg.army.mil/.

15 2009 Army Posture Statement, Asymmetric Warfare Group (AWG), http://www.army.mil/aps/09/information_papers/asymmetric_warfare_group.html.

capability gaps, enhances training and exploits enemy vulnerabilities to mitigate and defeat asymmetric threats. It was designed to craft doctrine for asymmetric warfare, improve the Army's asymmetric warfare capabilities at the operational and tactical levels and enhance the Army's capability to identify and attack enemy vulnerabilities. The AWG observes and collects information about the evolving asymmetric operating environment through teams of advisors deployed with operational forces. These teams report back through the AWG to inform senior leaders on the evolving conditions to facilitate short term policy and resource allocation decisions.

2. Rapid Equipping Force (REF)[16, 17]

The Army formed the REF in August 2002 to better respond to the urgent needs of its operational commanders. The REF initially consisted of a 13-man staff serving as an "acquisition catalyst" where the primary goal was not the development of new technologies, but the equipping of operational units by leveraging items that are already available in the Army, other services and the private sector.[18]

It has evolved into a multifunctional organization with the mission "to rapidly provide capabilities to Army forces employed globally through current and emerging technologies in order to improve operational effectiveness."[19] The REF serves as a solution medium, canvassing the military, industry, academia, and the scientific community for existing and emerging technologies. It relies on "tiger teams" that operate at home and embedded with units abroad to identify and evaluate deployed forces' needs and desired capabilities. Their role is to connect potential suppliers with users.[20]

The REF mission is focused on equipping versus fielding solutions. There is an important distinction between these two types of actions. Fielding involves the formal

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16 Army Rapid Equipping Force webpage, http://www.ref.army.mil/.

17 2009 Army Posture Statement, Rapid Equipping Force (REF), http://www.army.mil/aps/09/information_papers/rapid_equipping_force.html.

18 D. Bennett Dickson, "U.S. Army Rapid Equipping Force 2002-2007," 2008, 20.

19 REF Process Brief, April 2009.

20 Tim Kennedy, "Rapid-Fielding Team Tasked To Transform Army Acquisition," *National Defense*, February 2004.

acquisition processes and bureaucracies that slow the acquisition effort down but reduce the risk that the solution is not operationally effective and suitable in any environment for use throughout the Army. Equipping is focused on providing a near term solution for a specific combatant commander's need. To date, the REF has introduced 700 different types of equipment and has provided more than 80,000 items to units deployed worldwide in support of OCO.[21]

It is also important to understand the evolution of the REF organization over the last eight years. The structure of the REF has evolved to incorporate the lessons learned from doing rapid acquisition. It has become an organization with direct ties to both the operational and the acquisition communities (Figure 2). Additionally, in order to operate effectively in the rapid acquisition environment, the REF has evolved its internal organization to better align itself with traditional acquisition processes. It developed functional teams in the areas of human resources, technical management, logistics, operations, business management, and project management with liaison officers from relevant stakeholders from outside the organization. The actual roles of these functional areas will be explored further in Chapter IV.

[21] COL (P) Peter N. Fuller, "Rapid Acquisition – Developing Processes That Deliver Soldier Materiel Solutions Now," *Army AL&T Magazine*, Feb 2008.

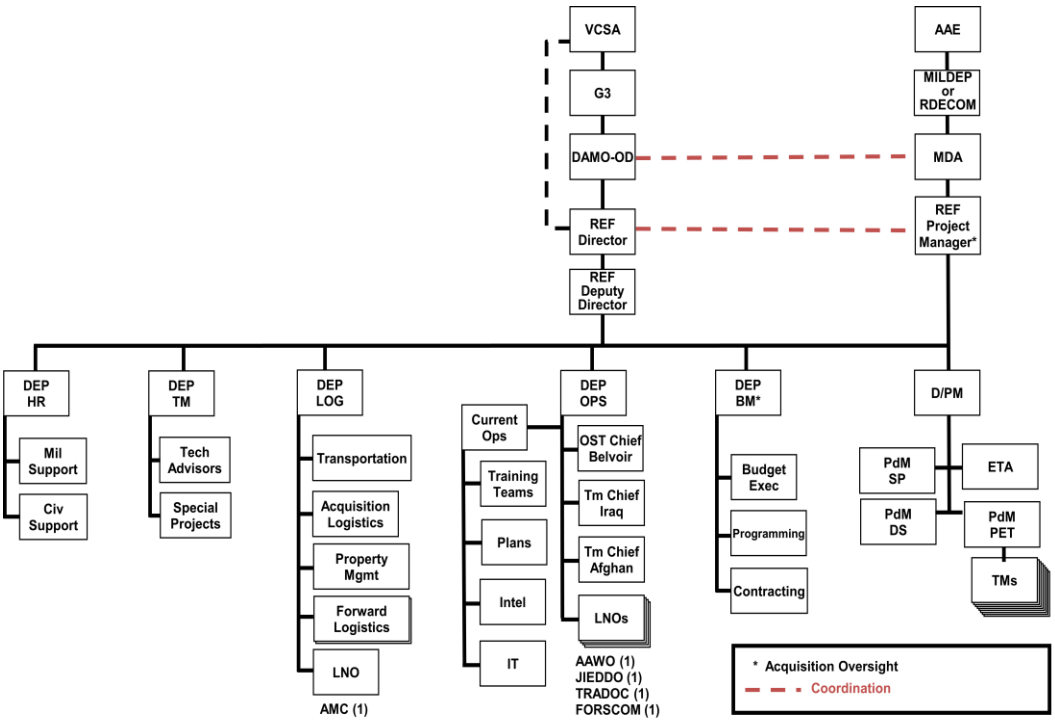

Figure 2. REF Organization

Although rapid acquisition initiatives do not have all of the same requirements as the traditional processes (e.g., meeting critical performance parameters such as: reliability, life cycle cost, full operational effectiveness and suitability), they are still governed by policy. In order to fully understand the REF's processes and determine which of them are appropriate for incorporation within traditional acquisition organizations, one must first understand the policies that govern rapid acquisition.

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III. POLICIES

Laws and regulations that provide considerable flexibility for acquisitions supporting urgent situations and national security requirements have existed for some time. Following the commencement of the current OCO, the acquisition community attempted to improve its awareness and its capabilities to quickly respond to an array of geographically dispersed requirements. However, the traditional Army acquisition organizations have struggled to respond rapidly within the bounds of these existing acquisition laws and the bureaucracy inherent in their organizational structure. The Army acquisition policies and processes, created during peace time, were considered streamlined and expedient, but they were not responsive enough to provide our warfighters what they needed when they needed it.

As a result, the DoD and Congress implemented statutory and regulatory changes increasing the options to streamline acquisition of materiel needed to prosecute and win a war in an asymmetric environment. The following sections present some of the most important aspects of policies and regulations that govern the Army's rapid acquisition process. One of the most relevant statutes governing rapid acquisition was implemented as part of the Fiscal Year 2003 National Defense Authorization Act.

A. UNITED STATES CODE, TITLE 10, SECTION 2302[22]

Congress mandated the establishment of rapid acquisition and deployment procedures through the Bob Stump National Defense Authorization Act (NDAA) for Fiscal Year 2003 (Public Law 107-314).[23] It directed the Secretary of Defense (SECDEF) to specify procedures for the rapid acquisition and deployment of items that were urgently needed to react to an enemy threat or to respond to an urgent safety situation.

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22 10 U.S. Code Section 2302, Rapid Acquisition and Deployment Procedures, 2006 Main Edition.

23 Public Law 107-134, Section 806, U.S. Congress, Bob Stump National Defense Authorization Act for Fiscal Year 2003, 2 December 2002.

These procedures prescribed processes to: (1) streamline communications between the Chairman of the Joint Chiefs of Staff, the acquisition community and the research and development community; (2) improve how the Combatant Commanders communicate their needs; (3) enhance the acquisition community and the research and development community proposal of solutions to meet those needs; and (4) demonstrate, rapidly acquire and deploy items proposed in response to combat emergencies.

Furthermore, Congress amended Section 806 of the Bob Stump NDAA 2003 through the Ronald Reagan National Defense Authorization Act for Fiscal Year 2005 (Public Law 108-375)[24] to clearly define the Rapid Acquisition Authority (RAA). The RAA gives the SECDEF the necessary authority to rapidly acquire and deploy equipment to respond to combat emergencies. Some key provisions that are important to note from the 2005 NDAA are: (1) the SECDEF can use the procedures developed in the NDAA to accomplish the rapid acquisition and deployment of equipment urgently needed to eliminate a combat capability deficiency that has resulted in combat fatalities; (2) the SECDEF must designate a senior official of the DoD to ensure that the needed equipment is acquired and deployed as quickly as possible, with a goal of awarding a contract for the acquisition of the equipment within 15 days; finally, (3) upon designation of the senior official, the SECDEF shall authorize that official to waive any provision of law, policy, directive, or regulation that might unnecessarily impede the rapid acquisition and deployment of the needed equipment with the caveat that such impediment is submitted in writing and that any waiver is not contrary to any provision of law imposing civil or criminal penalties.

The bill included the following limitations: (1) acquisitions under this authority are limited to no more than $100,000,000 during any fiscal year; (2) SECDEF shall notify Congressional Defense Committees within 15 days if such action is deemed necessary;

24 Public Law 108-375, Section 811, 108th Congress, Ronald E. Reagan National Defense Authorization Act for Fiscal Year 2005, "Rapid Acquisition Authority to Respond to Combat Emergencies," 28 October 2004.

and (3) any acquisition initiated under this authority shall transition to the normal acquisition system no later than two years after the date on which the SECDEF makes the determination.

It is important to understand that rapid acquisition initiatives executed under these statutes are not consider "fielded" items but "equipped" items, and as such, they have to be transitioned to the normal acquisition before the items can be fielded within a Service Activity.

B. CHAIRMAN OF THE JOINT CHIEFS OF STAFF INSTRUCTION (CJCSI) 3470.01, RAPID VALIDATION AND RESOURCING OF JOINT URGENT OPERATIONAL NEEDS (JUON) IN THE YEAR OF EXECUTION, 2005[25]

CJCSI 3470.01 establishes policy and procedures to facilitate assessment, validation, sourcing, resourcing and fielding of operationally urgent combatant commander needs in the execution-year. This process does not replace the Joint Capabilities Integration and Development System (JCIDS) process but rather accelerates the process of fielding readily available systems to satisfy joint urgent wartime needs. This instruction only applies to supporting combatant commands with a JUON that are deployed or already operationally employed in support of SECDEF missions. This instruction can only be used to field acquisition category ACAT II-IV equivalent programs.

The process is not intended to replace any other Joint Staff process or to compete with any of the current Service processes but rather complement them. The main purpose of the process is to rapidly validate a resource and field urgent operational solutions that fall outside of the established Service processes in order to prevent combat loss of life or combat mission failure.

[25] Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3470.1, Rapid Validation and Resourcing of Joint Urgent Operational Needs (JUONS) in the Year of Execution, 15 July 2005.

C. DOD DIRECTIVE (DODD) 5000.01, THE DEFENSE ACQUISITION SYSTEM, 2003[26]

DoDD 5000.0l, along with DoD Instruction (DoDI) 5000.02 Operation of the Defense Acquisition system, "provides management principles and mandatory policies and procedures for managing all acquisition programs." It introduces policies regarding the principles of flexibility, innovation, discipline, responsiveness, and streamlined and effective management to govern the Defense Acquisition System. The directive allows for the tailoring of program strategies, oversight, documentation, acquisition phases and timing, and decision levels to fit the time-sensitivity of the capability need. In addition, the directive states that advanced technology shall be integrated into producible systems and deployed in the shortest time practicable.

Furthermore, DoDD 5000.01 directs that approved, time-phased capability needs must be matched with available technology and resources enabling evolutionary acquisition strategies. Evolutionary acquisition strategies are the preferred approach to satisfying operational needs. These strategies allow the fielding of mature increments of capability to the warfighter, rather than delaying fielding until the full capability has been developed.[27]

D. DODI 5000.02, OPERATION OF THE DEFENSE ACQUISITION SYSTEM, 2008

The recently revised DoDI 5000.02 provides instructions for the implementation of DoDD 5000.01. It expands on the concept of evolutionary acquisition as the preferred DoD strategy for the rapid acquisition of mature technology for the user. It defines the objective as the balancing of needs and available capability with resources and placing capability into the hands of the user quickly. "The success of the strategy depends on phased definition of capability needs and system requirements, and the maturation of technologies that lead to the disciplined development and production of systems

[26] Department of Defense Directive (DoDD) 5000.01, The Defense Acquisition System, May 2003, paragraph 1.1.2.

[27] DoDD 5000.01, para 4.3.

providing increasing capability over time."[28] In this process, a needed operational capability is met over time by developing several increments, each dependent upon available mature technology, but recognizing the up-front need for future capability improvements.

Even though DoDI 5000.02 presents the concept of evolutionary acquisition and is flexible enough to allow streamlined and phased acquisition (e.g., through the use of the UMR process), it does not offer specific guidelines with regard to rapid acquisition. As a result, each of the Services has taken responsibility to establish governance and guidance on how to manage rapid acquisition in a wartime environment.

E. ARMY REGULATION (AR) 70-1, ARMY ACQUISITION POLICY, 2004[29] AND DEPARTMENT OF THE ARMY (DA) PAMPHLET (PAM) 70-3, ARMY ACQUISITION PROCEDURES, 2008.

AR 70-1 and DA PAM 70-3 provide policy, guidance and procedures for Army Acquisition. AR 70-1 was last updated in 2004; as a result, it does not reflect the recent changes in DoDI 5000.02. However, a rapid action revision (RAR) was issued in April 2009 for DA PAM 70-3 to reflect changes in DoDI 5000.02. Although the policy and the PAM do not specifically address how to manage the acquisition of Army rapid acquisition items, they integrate the concepts of evolutionary acquisition, and they briefly discuss type classification for limited procurement (TC-LP) and the concept of rapid response initiatives.[30] As of today, the Army uses AR 700-142 and DA PAM 700-142 to define the process, policy, and procedures for the accomplishment of Materiel Release (MR) and type classification of weapons systems. On the other hand, the Army uses AR 71-9 for the procurement and management of rapid acquisition items. Additionally, it is a requirements determination policy not an acquisition of materiel policy.

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[28] Department of Defense Instruction (DoDI) 5000.02, Operation of the Defense Acquisition System, Dec 2008, paragraph 2.a.

[29] Headquarters Department of the Army, Army Regulation 70-1, Army Acquisition Policy, 31 December 2003, RAR January 2004.

[30] Headquarters Department of the Army, Army Pamphlet 70-3, Army Acquisition Procedures, 28 January 2008, RAR April 2009, paragraph 1-20 b.(2).

F. AR 71-9, WARFIGHTING CAPABILITY DETERMINATION, 2009

Until a major revision to incorporate guidance in the updated DoDD 5000.1 and DoDDI 5000.02 in December 2009, the Army policy for determining materiel requirements was based on a 1998 regulation. The previous version briefly addressed a "Requirements Streamlining" process[31], but it failed to address urgent needs. The updated "regulation establishes policies and assigns responsibilities for the identification, determination, and integration of required warfighting capabilities. It applies to the validation and approval of capabilities supporting deliberate force modernization planning and the urgent needs of operational commanders."[32] The Army uses the Operational Needs Statement (ONS) process to shorten the acquisition timelines for less than ACAT I programs to meet urgent needs during conflict. However, the regulation stipulates that "(t)he ONS is not a JCIDS capability document but a request for need validation and sourcing of a perceived requirement."[33] "(T)he ONS provides an opportunity for the operational commander, outside the acquisition, combat development, and training communities, to initiate the capability determination process."[34] AR 71-9 is the only Army policy that defines "the policies and procedures for deployed, prepare-to-deploy, deploying units, deployment ready brigades, and strategic reserve elements, evolve over time to best support the warfighter" in terms of "equipping" operational forces.[35]

The regulation introduces the Capabilities Development for Rapid Transition (CDRT) process as "a process to identify and approve tactical nonstandard equipment, commercial or government-produced, in use in current operation to become sustained Army equipment or compete to become an Army acquisition program."[36] The CDRT

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[31] Headquarters Department of the Army, Army Regulation 71-9, Warfighting Capabilities Determination, December 2009.

[32] AR 71-9, para 1-1.

[33] AR 71-9, para 6-1.b.

[34] AR 71-9, para 6-1.a.

[35] AR 71-9, para 7-3.a.

[36] AR 71-9, para 6-4.a.

process provides an opportunity to "reduce the JCIDS document development cycle."[37] JCIDS capability requirements may originate from solutions developed in response to a field commander's ONS or from a capability provided by a REF like organization that has broader applicability across the Army, especially if the technology provides a critical leap-ahead military advantage, mitigating or eliminating a known capability gap.[38]

G. TRADOC REGULATION 71-20, CONCEPT DEVELOPMENT, EXPERIMENTATION AND REQUIREMENTS DETERMINATION, 2009

The recently updated TRADOC Regulation 71-20 prescribes policy for the implementation and execution of JCIDS and guidance for TRADOC's support of the DAS.[39] This policy defines the roles and responsibilities of the Army Capabilities Integration Center (ARCIC) in both the deliberate and accelerated development processes to address capability requirements.[40] As part of the Accelerated Capabilities Development (ACD) process, the ARCIC leads and manages the following: identification of current capability needs and candidate solutions; provisioning of the context for capabilities development through CONOPS and DOTMLPF analysis; determination of deployment and employment options; provisioning of assessments, and determination of a way ahead for rapidly equipped capabilities; identification of alternate paths into the deliberate JCIDS process; and unit-level integration and assessment of solutions in conjunction with the REF Office and the AAWO.[41] This regulation states that combatant command and Army compliance with the JCIDS process is not required to support fielding immediate solutions to the warfighter's urgent operational needs as they should be worked through the JRAC. Furthermore, it states that JCIDS is a tailorable process and that the JROC has identified several alternative paths to allow the accelerated

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[37] AR 71-9, para 6-4.c.

[38] AR 71-9, para 1-5,b.(2)(a).

[39] Headquarters Department of the Army, Training and Doctrine Command Regulation (TRADOC Reg) 71-20, Concept Development, Experimentation and Requirements Determination, May, paragraph 1-1.

[40] TRADOC Reg 71-20, para 1-4,c(2).

[41] TRADOC Reg 71-20, para 1-4.c(4).

identification of capability gaps and potential solutions. This flexibility allows entry into the JCIDS process at the appropriate stage to deliver capabilities rapidly.[42]

The regulation describes the ACD and CDRT processes in detail. The ACD process starts with the identification of a requirement and ends with the determination of a path forward for rapidly equipped capabilities. It generally consists of three phases: identification of a capability requirement and candidate solutions; solution development, assessment and deployment; and a program and employment decision.[43] ARCIC conducts the CDRT process to inform the program and employment decision. The CDRT initiative is conducted semiannually to identify promising capabilities, determine operational support for the identified capabilities and make a recommendation to senior Army leadership for future action. Those recommendations are used to determine which rapid initiatives should become Army-wide Programs of Record, which should be maintained as a "capability gap" solution in theater, and which should be terminated.[44]

H. AR 700-142, TYPE CLASSIFICATION, MATERIEL RELEASE, FIELDING AND TRANSFER, 2008[45] AND DA PAM 700-142, INSTRUCTIONS FOR MATERIEL RELEASE, FIELDING AND TRANSFER, 2010[46]

AR 700-142 and DA PAM 700-142 provide policy, guidance and procedures for Army materiel release and fielding to include the UMR policy, procedures and documentation requirements that allow the PM to field materiel rapidly to meet a capability short fall. The UMR is solely intended to meet an operational need of a deployed or imminently deploying force in support of approved operational contingencies, and it is restricted to a specific quantity, location and application.

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[42] TRADOC Reg 71-20, para 5-3.

[43] TRADOC Reg 71-20, para 9-2.d.

[44] TRADOC Reg 71-20, para 9-3.

[45] Headquarters Department of the Army, Army Regulation 700-142, Type Classification, Materiel Release, Fielding and Transfer, March 2008, RAR October 2008.

[46] Headquarters Department of the Army, Army Pamphlet 700-142, Instructions for Materiel Release, Fielding and Transfer, June 2010.

The UMR procedures may be used for type-classified and non type-classified systems or materiel, to include REF, JIEDDO, Joint Concept Technology Demonstration (JCTD), and Advanced Technology Demonstration (ATD) equipment authorized for deployment with the using unit. However, the UMR regulation specifically states that the policy and procedures are not intended as a means to meet budgetary obligations, recover schedule slippages, accelerate materiel fielding, provide early opportunities to field units for training or testing, or to circumvent the normal materiel release policy.[47]

I. SUMMARY

As evident from the publication dates, many of the laws and regulations that affect rapid acquisitions have been updated since the start of the war. They have been modified to provide the flexibility required to meet the demands and urgent needs of our combatant commanders. The statutes, policies and regulations outlined above provide the framework for rapid acquisition activities such as the Army REF to operate within, but definitive guidelines and procedures are lacking. Acquisition policies have always encouraged flexibility, innovation and responsiveness (especially during wartime), however the processes created to implement policies and the large amount of directed oversight have limited the flexibility, innovation and responsiveness of the rapid acquisition process. Rapid acquisition activities, like JIEDDO and the REF, could not be as effective if they had to adhere to the same procedures as the PM Offices. In the current environment, the timeliness of emerging capability requirements fulfillment is of the essence, and it is something that the traditional acquisition process lacks.

New legislation and updated policies and regulations will not improve the fielding of urgent needs by themselves. They must be coupled with timely, efficient and effective acquisition execution led by experienced leaders. The flexibility provided by some of these regulations has offered the Army REF significant latitude for defining their business and execution processes over the last eight years. A prime opportunity exists to leverage the lessons that the Army REF has learned as they developed those processes

[47] AR 700-142, paragraph 4-9.

and translate appropriate practices to our traditional acquisition organizations. That exercise begins an in-depth discussion of the Army's ACD process.

IV. PROCESS

We can't use the traditional peacetime acquisition processes. All of our processes have to be much more rapid and much more responsive.

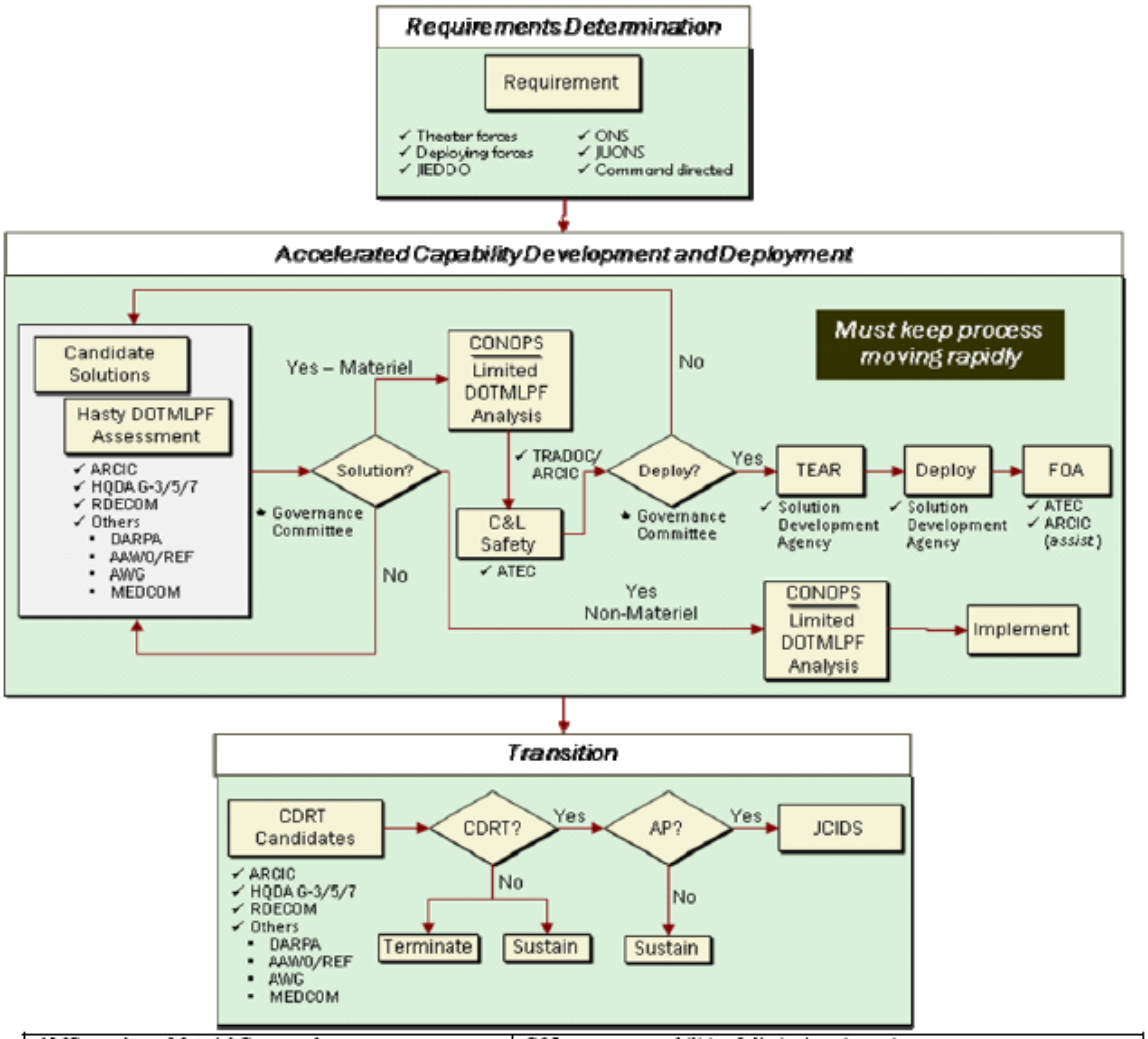
General Petraeus[48]

A. ACCELERATED CAPABILITIES DEVELOPMENT (ACD)

The current OCO has forced the Army to develop an ACD process to improve its ability to respond rapidly to emerging requirements in an asymmetric environment. The Army rapid acquisition agencies have utilized the ACD process to quickly identify critical gaps, develop solutions, and deploy capabilities, while TRADOC's ARCIC has ensured an integrated doctrine, organization, training, materiel, leadership and education, personnel and facilities (DOTMLPF) equipping approach in support of these efforts.

The ACD process begins with the identification of a requirement and ends with the determination of a path forward for rapidly equipped capabilities. Figure 3 depicts the three phases of the Army's ACD process: Requirements Determination, Accelerated Capability Development and Deployment and Transition.

[48] General David Petraeus, "Adaptive, Responsive and Speedy Acquisitions," *Defense AT&L Magazine*, Jan-Feb 2010.



AMC	Army Materiel Command	C&L	capabilities & limitations (report)
AP	acquisition program	MEDCOM	Medical Command
AWG	Asymmetric Warfare Group	TEAR	theater equipment acceptance report

Figure 3. Accelerated Capability Development[49]

1. Requirements Determination

The basis of requirements for the fielding of capabilities to address immediate needs and the primary source of ACD requirements is the ONS or JUONS validated by Headquarters, Department of the Army (HQDA) or the Joint Capabilities Board (JCB), respectively. However, the REF has created a streamlined document based on the ONS, the REF 10 Liner, to further accelerate requirements identification. The REF "10 Liner" (Figure 4) has proved to be a simple and effective method of capturing urgent

[49] TRADOC Reg 71-20, Figure 9-1.

requirements, and, as a result, it has been identified as a best practice by a DoD LSS Rapid Acquisition Process Analysis Cross Functional Team. It will be discussed later in this chapter as part of the REF process.

- Baseline document that drives the REF process
- Templated after the standard Operational Needs Statement (ONS), and consists of the following 10 lines:

1. Problem
2. Justification
3. System Characteristics
4. Operational Concept
5. Organizational Concept
6. Procurement Objective
7. Support Requirements
8. Availability
9. Recommendation
10. Coordination Accomplished

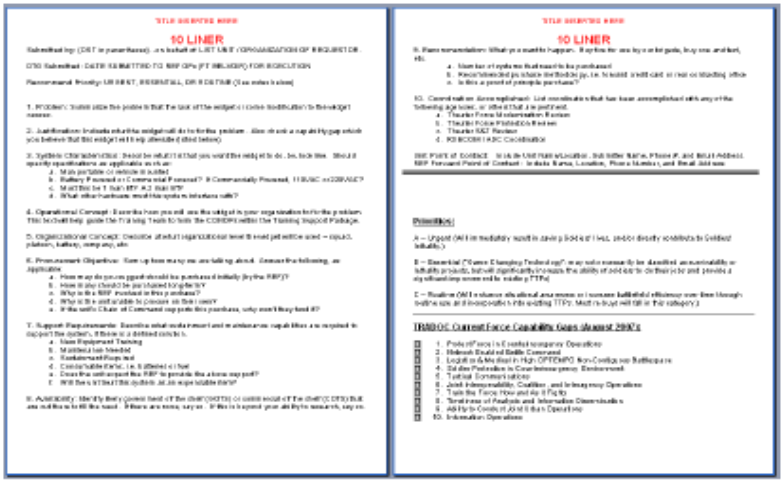


Figure 4. REF 10-Liner[50]

2. Accelerated Capability Development and Deployment

In response to validated urgent needs requirements, Army rapid acquisition agencies, like the REF, may propose candidate solutions for deployment directly to the VCSA. To accelerate the process, many of the developmental and operational testing requirements, that are normally required for acquisition systems, are relaxed. However, the agency responsible for deploying the candidate solution must ensure, at a minimum, that the item is safe for warfighter use and develop an assessment plan prior to providing the initial capability. This assessment plan consists of pre- and post-deployment assessments to ensure safety, technical applicability and operational utility. Once the initial testing is completed to ensure safety and operational effectiveness (i.e., provide the warfighter enough information on the systems so that they can employ them as quickly

50 William Beasley, Action Memo: Lean Six Sigma (LSS) Rapid Acquisition Process Analysis Cross Functional Team Tollgate Review, Tab C, December 19, 2008.

and with as much confidence as possible)[51], the Army makes the deployment decision for the selected solution. The role of the REF within the ACD process and their internal processes created to meet the urgent needs of the combatant commanders will be discussed later in the chapter.

3. Transition

The Army developed the Capabilities Development for Rapid Transition (CDRT) process as a means for determining a disposition for rapidly equipped capabilities. The CDRT process[52] is the approved Army process to transition new capabilities proven in the operational theaters of war (e.g., tactical non-standard equipment, commercial or government-produced) into long-term capabilities for the current and future force.[53] The process categorizes capabilities as:

1) Enduring: Has broad applicability across the entire Army and should transition to an Army acquisition program or DOTmLPF integrated capabilities recommendation (lowercase m signifies no new materiel proposal). The system fills a current capability gap and is applicable to the Future Force.
2) Sustain: Should be sustained in support of a specific theater or named operation. The system fills a current identified gap but it is not applicable to the entire Army or useful for the Future Force.
3) Terminate: Should not receive further HQDA resources. [54] The system is not sustained by HQDA funding but may be retained by the unit and supported with unit funding—exception is battle command systems which must be turned in immediately.

The CDRT process, which is conducted on a semi-annual basis, consists of five phases: identification, assessment, recommendation, validation, and approval (Figure 5).

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[51] Dr. Charles McQueary, Director of Operational Test and Evaluation, "The Key to Weapons that Work," *Defense AT&L Magazine*, Jan-Feb 2008.

[52] 2009 Army Posture Statement, Capabilities Development for Rapid Transition (CDRT), http://www.army.mil/aps/09/information_papers/capabilities_development_for_rapid_transition.html.

[53] Chief, Asymmetric Warfare Division, Accelerated & Capabilities Development Directorate, ARCIC TRADOC, Capabilities Development for Rapid Transition (CDRT) Iteration #7 Kickoff Meeting Presentation, February 3, 2009.

[54] AR 71-9, para 6-4.a., 27.

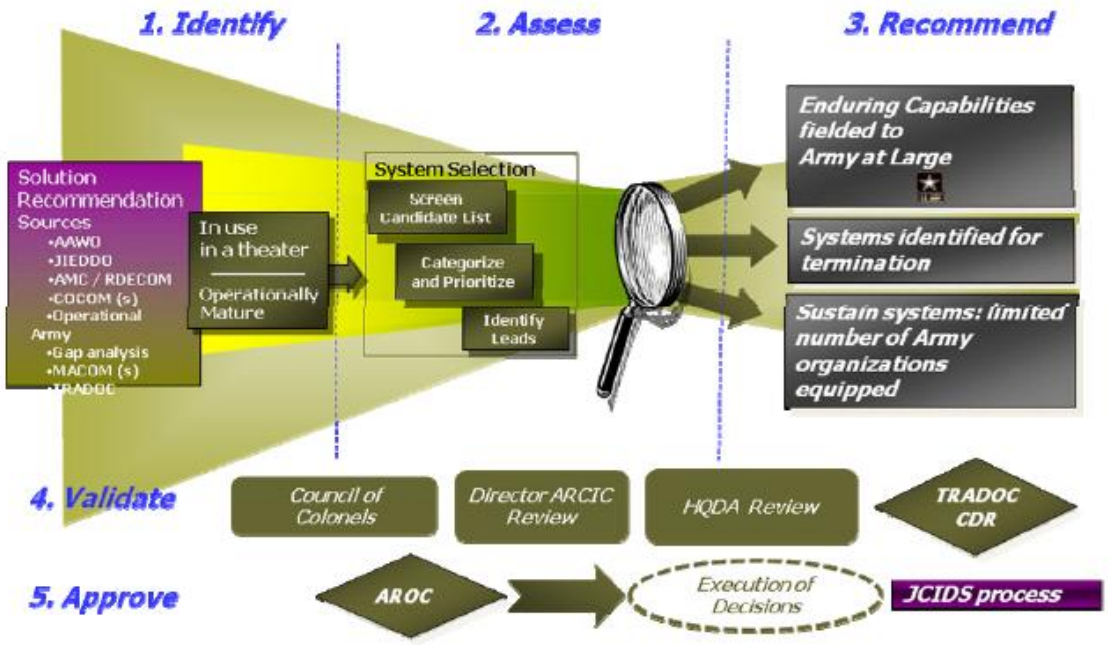

Figure 5. Capabilities Development for Rapid Transition Process (CDRT)[55]

During the identification phase, the ARCIC Accelerated Capabilities Development Division (ACD Div), in conjunction with JIEDDO, AAWO, REF Office, and HQDA Deputy Chief of Staff (DCS), G-3/5/7 (DAMO-CI), develops the primary list of CDRT candidate capabilities from operationally mature solutions or solutions that are in use in current operations. Subsequently, this list is distributed to force modernization branch proponents, TRADOC Capability Managers and TRADOC G-3/5/7 as well as non-TRADOC members of the CDRT community of interest to verify the candidate information during the assessment phase. These organizations have an opportunity to recommend additional capabilities for consideration at this point to ensure that all of the qualified candidates are considered.

This list is staffed through the operational Army for review and evaluation as to its disposition. Additionally, the final list is staffed to the generating force for comment. ACD Div evaluates the feedback and revises and re-staffs it as appropriate to categorize and prioritize the final list of recommended capabilities before it enters the validation stage.

[55] TRADOC Reg 71-20, Figure 9-2.

The categorized and prioritized recommendations are forwarded to an HQDA level council of colonels to begin the validation process. Once the council of colonels validates the recommendations, they proceed through reviews by the Director of ARCIC and the HQDA G-3 Staff before arriving at the TRADOC Commander for final validation. Once the TRADOC Commander has validated the CDRT recommendations, they are forwarded to the Army Requirements Oversight Council for approval and execution of the decisions which may include the official initiation into the JCIDS process for enduring programs.

During the current OCO, the Army has utilized a number of processes to equip units with new systems resulting in increased capabilities for deployed forces. Many of these systems have been assessed, through the CDRT process, to determine their final disposition. After nine iterations of the CDRT process, the Army has determined that: 10.7% of the items should be transitioned as enduring capabilities, 65.3% should be sustained in a limited manner and 24% should be terminated or no longer supported. [56]

In the first eight iterations, 472 systems and 12 non-materiel capabilities were considered and of those, 28 were approved for transition to acquisition programs, 316 were approved to be sustained in OEF/OIF with supplemental funding, 116 approved for termination (no further development or support) and 15 materiel capabilities were approved to merge into existing acquisition programs. The pending tenth iteration recommendations include eight materiel candidates, one non-materiel candidate and one candidate for termination. Such systems as the IED Route Clearance Package (MMPV RG 33L, MPCV Buffalo and VMMD Husky), the Armored Security Vehicle, Crew Remote Operated Weapons System (CROWS), and Raven were CDRT candidates that are now acquisition programs, and others, such as the Green Laser Interdiction System and Boomerang, have approved CPDs.

[56] Chief, Asymmetric Warfare Division, Accelerated & Capabilities Development Directorate, ARCIC TRADOC, Capabilities Development for Rapid Transition (CDRT) Iteration #9 Briefing to the Army Requirements and Resources Board, May 6, 2010.

B. THE ROLE OF THE REF WITHIN ACD

The REF is a multifunctional organization that can rapidly validate requirements that increase lethality, improve force protection and enhance survivability on the battlefield to fill critical capability gaps. The REF combines and integrates staff functions across several Army staff elements and Army commands to bring off-the-shelf materiel solutions to the warfighter through a streamlined acquisition methodology. Their methodology accelerates materiel solution developments and technology insertions that improve the operational effectiveness and Soldier safety of deployed Army forces.[57]

Organizationally, the REF is aligned under the Deputy Chief of Staff G-3/5/7 with close working relationship with the Assistant Secretary of the Army (Acquisition, Logistics, and Technology)(ASA(ALT)). The REF Director reports directly to the Director of Operations, Readiness and Mobilization (DAMO-OD) with additional responsibilities to the VCSA for coordination (Figure 2). Additionally, in 2005 the Army Acquisition Executive (AAE) designated all current and future REF programs as special interest ACAT III programs. As a result, the REF Director also provides semi-annual program updates to the AAE through their designated milestone decision authority (USA RDECOM Commander).[58] This organizational structure provides the REF Director with the authority required to execute the rapid mission while maintaining an adequate level of ASA(ALT) oversight and support. It combines combat development and materiel development functions within the same organization[59].

In an effort to effectively execute the REF's mission, the REF's Director issued guidance that allows his team to maximize flexibility in executing the mission while still meeting his intent. Additionally, the REF developed and instituted a repeatable business process, which includes a "binning" system to prioritize efforts, to ensure consistency and diligence.

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[57] Interview by the authors with COL Bishop, U.S. Army REF Director, and the REF team, Ft. Belvoir, VA, 29 March 2010.

[58] U.S. Army Audit Agency, "Rapid Equipping Force Initiative," Report No. A-2007-0131-ALA, 18 May 2007.

[59] COL David J. Bishop, Director Rapid Equipping Force, "Strength of a Nation: Rapid Equipping of our Soldiers at War," 10 Dec 2008.

1. REF Director's Guidance

To facilitate initiative and autonomy within the REF, the Director designated the following as key tasks, providing guidance and conveying his intent:

- Identify unit requirements and capability gaps
- Follow best business practices
- Facilitate effective equipment hand-off to units
- Ensure proper sustainment
- Conduct useful assessment of REF equipping assets
- Work friendly with other organizations
- Ensure REF projects are handed off appropriately
- Be quiet professionals (let the customer speak for the REF)
- Entertain out of the box solutions
- Explore innovative ideas and approaches
- Accept risk—do not be afraid to fail
- Never break the law

The REF's primary mission is to provide the combatant commanders with rapidly employable materiel solutions to fill critical capability gaps, but the REF Director made a conscious decision to make the alignment of the REF's efforts with the institutionalized Army acquisition process a top priority.

2. REF Binning System

To increase responsiveness to the warfighter needs and to meet the Director's intent and timelines, the REF developed (through the use of the lean six sigma process) an internal business process divided into phases with key decision points along the way. As part of this process, REF projects are separated into three basic categories or bins:

- Bin 1—Simple Commercial Off-the-Shelf (COTS)/Government Off-the-Shelf (GOTS)
- Bin 2—Modified COTS/GOTS
- Bin 3—Prototype Development

The delivery timelines associated with these categories are:

- Bin 1—Average of 90 Days (Span of 7-180 Days)
- Bin 2—Average of 180 Days (Span of 45 Days—2 Years)
- Bin 3—Average of 1 Year (Span of 2 Days—2 Years)

The span of times to deliver represents actual data from previously executed projects. The stated goal for all REF projects is 90 days or less.[60]

To focus on projects that best meet the Director's intent and fulfill the REF mission, they have developed a REF Requirements Matrix (Figure 6). The matrix facilitates the prioritization of projects based on the origin of the requirement and the REF Bin within which the solution falls. As with all government organizations, they operate with limited resources, and they must maximize their return on investment.

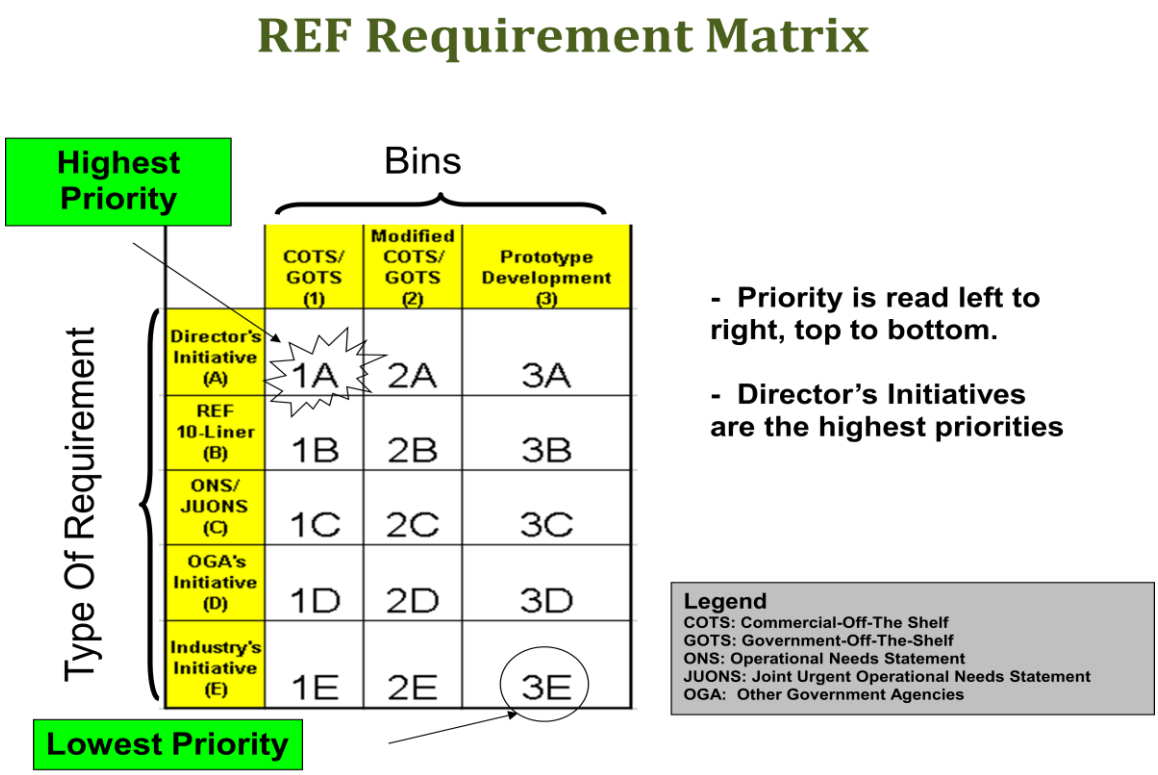

Figure 6. REF Requirements Matrix

3. REF Process

The REF process is an abbreviated process tailored to get a solution to the field quickly, but it is natural that it would reflect the basic methodology of traditional acquisition. The REF process consists of four major phases: requirements, materiel solution, deployment and transition. Just as there are key decision points or milestones in

[60] LTC Dean M. Hoffman, IV, "Lean Six Sigma Rapid Equipping Force Equipping Process LD12550," 19 June, 2009, slide 3.

the traditional process, there are four key decision points for the REF Director: Requirement and Director's Intent Approval, Cost\Schedule\Performance Approval, Equipping Decision, and Disposition Decision (Figure 7).

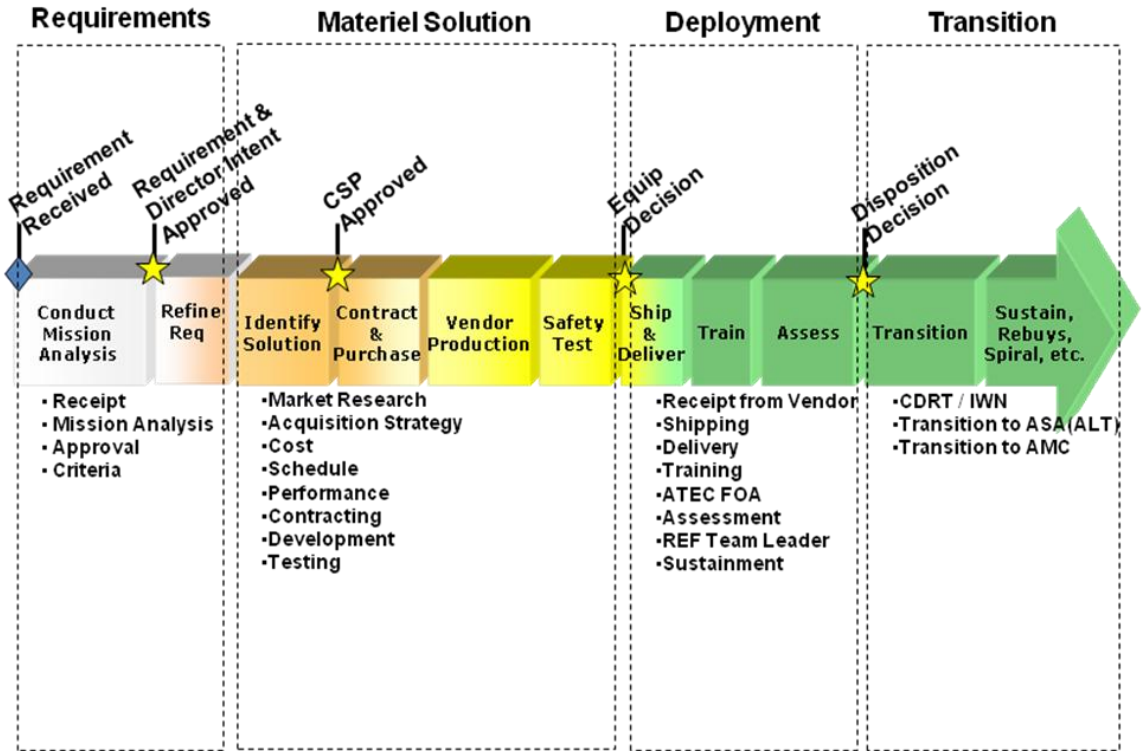

Figure 7. REF Process[61]

a. Requirements

Requirements definition is a critical task that defines the relevance and feasibility of an effort. As with traditional acquisition, the requirement provides the foundation of the program. If it is ill defined or unstable, the success of the project will be at risk. The key activities during the requirement phase are: Requirements Receipt, Mission Analysis, Requirements and Director's Intent Approval, and Requirements Refinement.

(1) Requirements Receipt. The source of the requirement determines the row in the REF Requirements Matrix (Figure 6) for the project priority

[61] REF Process Chart, REF Visit, March 29, 2010.

designation. The REF team receives requirements from multiple sources. In order of priority, they are: Director's Initiative (e.g., a call directly from theater or an issue in which the Director has taken a personal interest), requests from theater in the form of the REF 10-liner, traditional urgent need requests (e.g., JUONS, ONS, IWNS, Combat Mission Need Statement (CMNS)), other government agency (OGA) initiatives (e.g., DARPA, S&T) and industry's initiatives

To enhance responsiveness, the REF Director and his team are as directly connected to the warfighter as possible. A significant number of the REF civilian employees have prior military experience, and many of them have battlefield experience. Additionally, as a former combat brigade commander, the REF Director has done tours in OCO giving him a firsthand perspective of the challenges facing current commanders. He visits Soldiers on the battlefield when possible and maintains open lines of communication with the combatant commanders (i.e., one phone call away). The Director also communicates regularly with Army G-3/5/7 and the VCSA as part of the requirements determination process to ensure consistency with Army priorities and training strategies.[62]

The REF also maintains operational contact teams or "Tiger teams" in theater. These teams "maintain a close working relationship with the units including participation in unit combat operations. [They share] the same hardships and dangers as the units they [support and come] under fire when working with these units."[63] They periodically provide information back to the REF office that includes emerging requirements and technologies being used in theater that should be considered by the REF as materiel solutions to fill capability gaps.

(2) Mission Analysis. Once the requirement is received, the REF staff conducts a mission analysis in order to provide an informed recommendation to the REF Director. Their recommendation supports the first decision point in the REF

[62] Interview by the authors with COL Bishop, 29 March 2010.

[63] Dickson, *U.S. Army Rapid Equipping Force 2002-2007 Booklet*, 81-82.

process where the Director approves the requirement and provides his intent for the project. This decision point is similar to the Materiel Development Decision in the traditional process.

As a result of a Lean Six Sigma project, the REF has developed an efficient and effective process for this mission analysis of requirements, called METT-TC-FLARS. This process includes 11 factors: M-Mission, E-Enemy, T-Terrain and Weather, T-Troops and Support Available, T-Time Available, C-Civil Considerations, F-Funding, L-Legal, A-Assessments, R-Redundancy, and S-Sensitivity.[64]

This METT-TC-FLARS mission analysis process was developed to assist the bin team and staff analysis of the requirements relevant factors, from a REF perspective, in order to develop an informed recommendation to the REF Director. The process provides a repeatable method for analyzing well defined factors that have been identified as descriptions of relevant aspects of the environment. The REF has determined that "the accurate depiction of the environment is necessary for good decision making."[65] A detailed description of the METT-TC-FLARS process and factor descriptions are provided as an appendix to this report. Upon completion of the METT-TC-FLARS process, the bin team and REF staff present their recommendation and their understanding of the facts to the Director.

(3) Requirement and Director's Intent Approval. The results of the METT-TC-FLARS analysis and recommendation are not necessarily reflective of the REF Directors ultimate decision. The REF Director does not consider each effort in isolation, but rather as part of the total decision environment. He combines the information presented to him with all of the other relevant information to which the staff may not be privy and integrates it with sound doctrinal and technical competence. Ultimately, he has to consider the consequences of each decision as it follows from previous decisions, enables future decisions, and prevents other future decisions. He considers each item of information presented that includes: the warfighter's problem (i.e., what are they trying to resolve?), the capability gap (i.e., requirement/urgent need), and

64 Rapid Equipping Force, Rapid Equipping Force Mission Analysis Template, Slide 5, January 2010.

65 Rapid Equipping Force, Rapid Equipping Force Mission Analysis Template, Slide 3, January 2010.

the proposed solution. His approval decision will include guidance for requirement refinement and his intent for the effort. His intent provides general guidance that will empower the bin team to act with initiative and autonomy which, in turn, accelerates the equipping process.[66]

(4) Requirements Refinement. During the Requirements Refinement step, the bin team adjusts their initial analysis to reflect the Director's guidance. Additionally, the bin team derives the performance parameters necessary to meet the requirement. These parameters are the criteria that will drive solution identification activities.

b. Materiel Solution

The Materiel Solution phase is analogous to the Engineering and Manufacturing Development phase of the DAS. It encompasses all of the activities necessary to develop the solution from identification to testing. The REF process for this phase consists of: Solution Identification; Cost, Schedule, and Performance Approval; Contracting and Purchasing; Vendor Production; and Safety Testing. The phase ends with an Equipping Decision from the REF Director. Concurrently, TRADOC conducts an initial CONOPS and abbreviated DOTMLPF assessment to assist in determining if the solution is adequate and how a unit might implement the materiel solution. Additionally, TRADOC G3/5/7 monitors progress to ensure consistency with training strategies and priorities.[67]

c. Identify Solution

The first step in Materiel Solution phase begins with market research. Depending on the complexity of the requirement, the Bin team may conduct formal market research through Requests for Proposals, Request for Information, and/or technology search services or informal market research through DoD/National

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[66] Interview by the authors with COL Bishop, 29 March 2010.

[67] TRADOC Reg 71-20, 9-2 d. (1).

Laboratories, Program Executive Offices (PEOs), and/or OGAs. Based on the results of the market research, the team develops the acquisition strategy.

The acquisition strategy development very closely resembles traditional acquisition practices in this area. The team develops the statement of work; the independent government cost estimate; the contracting methodology; and the testing, sustainment, and training strategy. The result of the market research and the development of the acquisition strategy form the basis for the REF Director's Cost, Schedule, and Performance Approval decision brief.

(5) Cost, Schedule, and Performance Approval. The Cost, Schedule, and Performance Approval decision point is the second opportunity for the Director to ensure that the project is proceeding in accordance with his intent and provide additional guidance before contract award. The Director reviews all aspects of the plan to determine if the project is sufficiently prepared to move forward with contract award. There are several parallels that can be drawn between the traditional Milestone B decision point and the Cost, Schedule, and Performance Approval decision point. In both cases, key information for the decision is presented in the form of the acquisition strategy, a cost estimate, and some form of a system specification to inform the decision. Once the decision authority is satisfied, the team can proceed with contract award.[68]

(6) Contract & Purchase. Contracting is a portion of the REF Process that still provides a significant challenge. Because Federal funds are being expended and contracting operations are handled by contracting commands independent of the REF organization, the bureaucracy and oversight involved with this step make it a rate limiting factor. The REF projects are subject to the same formal requirements as traditional acquisition programs. They include lengthy review and approval processes that are tiered based on the total value of the contract. In an effort to streamline this process, the REF has entered into an agreement with the Research, Development, and Engineering Command (RDECOM) Contracting Office to fund seven full time employees in their office to support REF actions. Additionally, the REF has four government employees in the REF office whose primary role is contracting. As with

[68] Rapid Equipping Force, REF Cost, Schedule and Performance Worksheet, 2009.

traditional acquisition, the contract award process ends with a kick-off meeting to start development and/or production depending on the chosen materiel solution. [69]

(7) Vendor Production. The Vendor Production step includes all of the vendor actions necessary to produce the item. During this step the REF staff monitors the cost and schedule associated with the production of the item, as well as the performance of the item in terms of the criteria established in the Requirement Refinement step. Once items representative of the items to be equipped have been produced, they can begin requisite testing.

(8) Safety Test. The Army Test and Evaluation Command (ATEC) conducts both pre-deployment and post-deployment assessments to ensure safety, technical applicability and operational usefulness. Army regulations require the Program Manager to obtain a Safety Confirmation from ATEC prior to fielding a system. In the case of the Army rapid activities like the REF, even though they deal with rapid initiatives and their items are not considered "fielded", this requirement also applies as verification of safety is a requirement that cannot be waived.

The Safety Confirmation is a document that identifies and assesses risks for hazards that are not adequately controlled or mitigated, lists any technical or operational limitations or precautions and highlights any safety problems that require further investigation and testing. The number of Safety Confirmations released in support of OCO has increased exponentially since 2001. [70] By the end of Fiscal Year (FY) 2009, Safety Confirmations released in support of OCO were about the same as for programs of record.

ATEC has evolved to achieve balance between the requirements of the traditional acquisition process and the current rapid equipping by transforming the way it does business. ATEC has created policy guidance (Figure 8) detailing how to manage rapid initiatives and urgent materiel release items to ensure responsiveness to all customer's needs while remaining faithful to supporting the warfighter and acquisition

[69] Interview by the authors with LTC Dean Hoffman, U.S. Army REF Team, Ft. Belvoir, VA, 29 March 2010.

[70] U.S. Army Test and Evaluation Command, Rapid Initiative Test & Evaluation for Army Audit Agency, 25 March 2010.

community with high quality and operationally relevant technical information. As a result, a concise Capabilities and Limitations (C&L) report is released concurrently with the required Safety Confirmation to provide the warfighter and the decision makers with a quick assessment of the operational effectiveness and suitability of the item. The C&L report characterizes for the PM and Soldier what the system does and does not do as well as how to employ it to get the most effective use out of it.[71]

Additionally, ATEC has embedded liaison officers within the Program Executive Offices and some of the rapid offices (to include REF) to provide test and evaluation support as early as the requirement phase to determine testability of the requirement. ATEC has provided liaisons to the REF since early 2004. The ATEC liaisons are responsible for: gathering the REF requirements, coordinating any test required by the Developmental Test Command to assess system safety and ensuring that all required T&E documents (i.e., safety confirmation and C&L report) necessary to deploy the equipment to theater are provided to the REF within the REF timeline of 180 days or less (i.e., for Bin 1 and 2).

The ATEC System Team (AST), located at HQ ATEC, is also a key support element to the REF acquisition process. The team negotiates with the REF project leader on the minimum essential test and evaluation needed to support an informed equipping decision with an acceptable test schedule and within reasonable funding requirements. The AST prepares a test and evaluation concept based on the complexity and maturity of the system, the time and resources available to conduct testing, availability of the system for testing and the level of risk associated with the intended use of the system (i.e., safety concerns).

[71] U.S. Army Test and Evaluation (ATEC) Interim Policy Guidance (IPG) 08-4, Update on the Rapid Initiatives (RI) and Urgent Materiel Release (UMR) Process within ATEC, 25 September 2008.

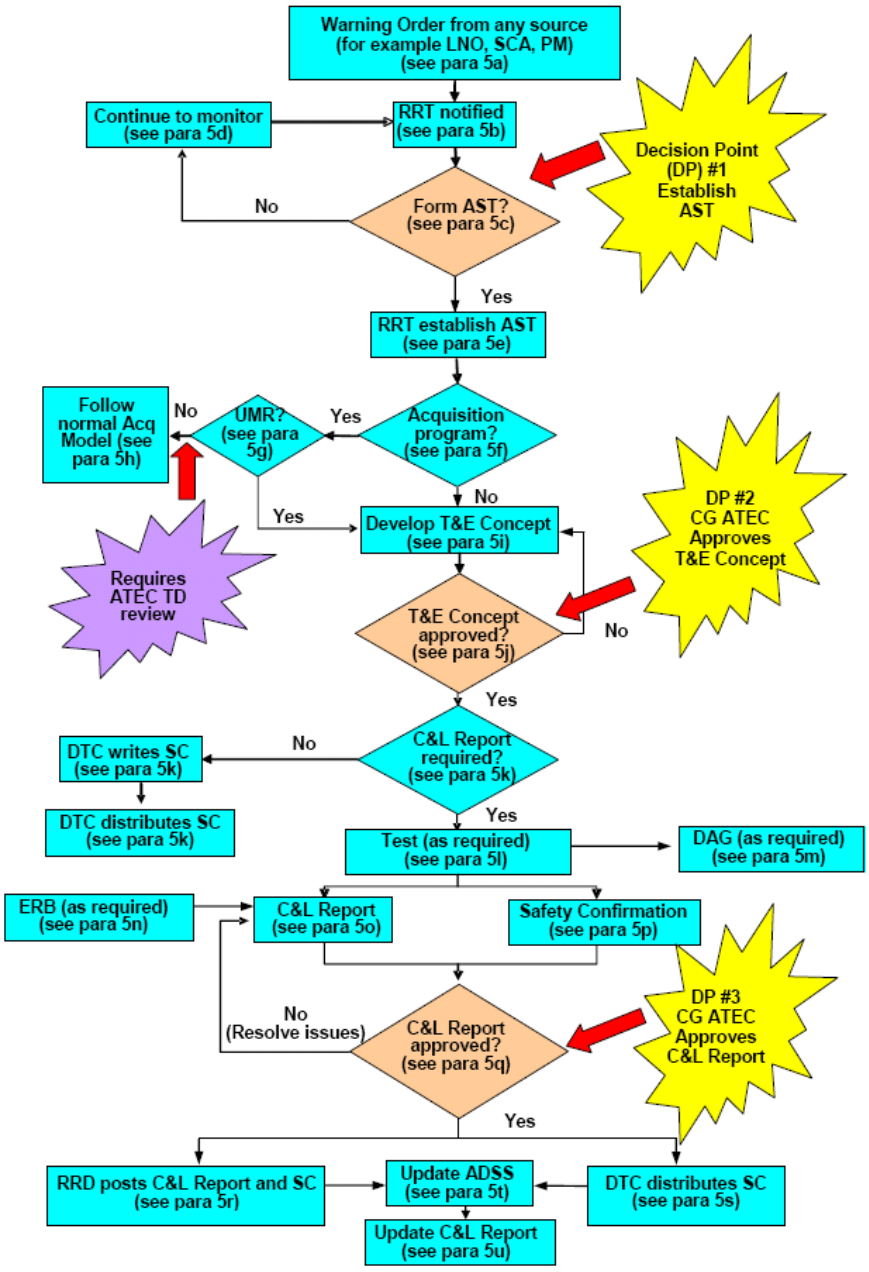

Figure 8. ATEC RI and UMR Process[72]

(9) Equip Decision. The final step of the Materiel Solution phase is the Equip Decision gate. The REF staff presents the current status of the project with respect to cost, schedule, and performance as well the results of all tests to the Director. The Director considers all of the information and determines if the system is

72 ATEC IPG 08-4, Figure 1.

ready to proceed to the Deployment phase or whether the item or plan needs to be modified prior to moving to the next phase. This decision point is the REF Process equivalent of the Full Rate Production decision.

d. Deployment

The Deployment phase of the REF Process is focused on traditional logistical functions as well as follow-on assessments of the item's performance. The REF has a Logistics Management Division consisting of logistics analysts, transportation coordinators, a warehouse manager, and a property book team that manage the execution of these tasks. The phase consists of three major activities and a decision point. The three activities are: Ship and Deliver, Train, and Assess, and the decision point is the final Disposition Decision for the item from the REF Director.

As with traditional acquisitions, the REF has recognized the importance of considering logistics early in the project lifecycle. Key logistics tasks are divided into logistics analysis, transportation coordination, warehouse management, and property book management functional areas, and they are completed throughout the REF Process (Figure 9). Although a significant amount of planning and preparatory work is conducted in the Requirements and Materiel Solution Phases, the REF Logistics Management Division becomes the main effort during the Deployment Phase. Many of the tasks conducted by the REF Logistics Management Division in this phase are analogous with New Equipment Training (NET) fielding team tasks. Furthermore, the REF develops an acquisition and support plan approved by the Army Materiel Command for every item that it equips.[73]

[73] Harold Kennedy, "Army Equipping Force Taking Root," *National Defense Magazine*, October 2006.

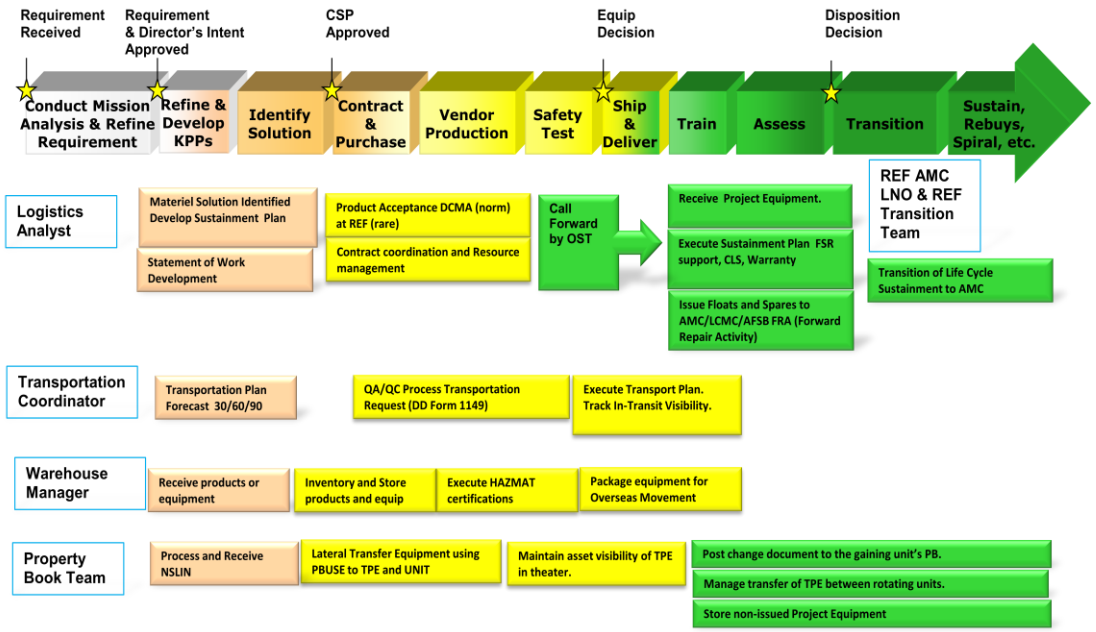

Figure 9. REF Logistics Tasks[74]

(10) Ship & Deliver. The shipping and delivery process for REF items is tailored to each project. The logistical planning is conducted throughout the lifecycle of the project, and it is an integral part of the overall acquisition strategy. Generally, the items are shipped from the vendor to the REF warehouse where they are inventoried, entered into the property system, and packaged for shipment. If the requesting unit is already deployed, the operational contact teams in theater call the items forward and conduct the hand off of the equipment to the unit. If the unit has not yet deployed, the item will be shipped to the unit. In either case, REF personnel will facilitate training on the equipment once it is received by the requesting unit.

(11) Train. As part of the evolution of its process, the REF has "validated the need to provide not only equipment, but also training and sustainment support for the equipment that was delivered to units."[75] The preferred training concept is to train the unit on equipment at their home station prior to deployment, so that the unit can include the equipment in unit training conducted in preparation for deployment.

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[74] Rodney Spann, REF Logistics Management Division Brief, 29 March 2010, Slide 2.

[75] Dickson, *U.S. Army Rapid Equipping Force 2002-2007 Booklet*, 82.

The REF has facilitated home station training when possible. Additionally, the REF has coordinated with the Combat Training Centers to inject rapid equipping into their Mission Readiness Exercises.[76] Unfortunately, due to the nature of urgent needs identification, training prior to deployment is not usually possible. In many cases training is conducted on-site by the operational contact teams that deliver the equipment.

(12) Assess. As part of the deployment phase, the same operational contact teams that gather emerging requirements and facilitate deployment and training of the equipment in theater are also collecting feedback about the operational effectiveness, safety, training adequacy, maintenance problems, vulnerabilities, and survivability issues from the warfighters. Additionally, ATEC has established Forward Operating Assessment (FOA) teams,[77] which are made up of Soldiers and DA civilians that are located throughout Iraq, Afghanistan and Kuwait to observe employment of equipment from the REF, JIEDDO and other commands. The ATEC FOA teams conduct Theater Data Events (TDE) through questionnaires, one-on-one interviews, observation and surveys making it a point to talk directly with Soldiers and unit leaders to get various perspectives on how the equipment or technology is performing in the field. As a result, "(t)he information exchange between personnel in Iraq and the test community has been shortened to just a few hours in some cases. The feedback loop is clearly faster and more direct."[78] ATEC uses this data to propose new technical solutions or modifications to enhance Soldier's safety and improve their working conditions and to update the C&L report which provides essential information to Army leadership and acquisition decision makers for disposition determination. The TDEs provide a means to follow up on systems that are rapidly "equipped" with little or no testing and expand the user's knowledge of materiel capabilities and limitations. [79]

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[76] Dickson, *U.S. Army Rapid Equipping Force 2002-2007 Booklet*, 86.

[77] U.S. Army Test and Evaluation (ATEC) Interim Policy Guidance (IPG) 07-3, Forward Operational Assessment (FOA) Team, 19 September 2007.

[78] MG James R. Myles and Michael E. Cast, "Army Test and Evaluation Command Makes Rapid Acquisition a Reality," *Army Magazine*, September 2006.

[79] ATEC, Rapid Initiative Test & Evaluation for Army Audit Agency, 25 March 2010.

e. Disposition Decision

The feedback from the operational contact teams and the ATEC FOAs provide the REF Director with information to support his final decision point, the Disposition Decision. At this decision point, the REF Director evaluates the item and determines the ultimate disposition of the item from the REF's perspective. He has the option to terminate support of the item, continue support the item for a limited time, and transition support of the item to the gaining command. He also has the option to recommend transition of the item as an enduring capability. After evaluating all of the assessment data, the REF Director and his team determine the disposition recommendation to be provided to the RDECOM Commander, who is the Milestone Decision Authority.

f. Transition

The REF Disposition Decision precedes entry into the last phase of the REF Process, Transition. In this phase, the RDECOM Commander considers the REF recommendation, and then submits proposed candidates with the disposition recommendation to ARCIC for determination of disposition through the CDRT process.

(13) Materiel Transition . The level of transition at this point in the project lifecycle is dependent on the MDA's decision and the sustainment strategy. The REF is not adequately funded to sustain equipped items indefinitely, so the goal is to transition sustainment to the gaining command as soon as possible. Generally, the REF plans for no more than one year of sustainment. The ideal solution is that the capability will transition to an enduring capability through the CDRT process.

(14) Sustain, Rebuys, Spiral, etc. The final step in the REF process is dependent on the Director's disposition decision. As part of REF Sustainment Operations, there are options for the REF to continue to sustain the item while the unit is deployed. A final option, if the situation warrants, is for the REF to provide up to a two year funding bridge or conduct rebuys of the item to sustain the capability.

4. REF Knowledge Management System[80]

The REF has as its explicit mission to rapidly provide capabilities to Army forces employed globally in order to improve operational effectiveness. Naturally, that mission is data-dependent. Fulfilling requirements economically, efficiently and effectively is a function of the speed of business intelligence communication created with data across the Enterprise from multiple locations and security classifications.

The REF spent several years utilizing the Science & Technology Enterprise Management System (STEM) that was designed for Science and Technology (S&T) and promised to provide partnerships and access to all data on S&T relevant for the REF. Unfortunately, this partnership did not deliver sufficiently.

Consequently, the REF Director determined that a Knowledge Management System (KMS) was necessary to support the REF efforts. In 2009, the REF contracted to build a KMS that would allow the REF Enterprise, stateside and OCONUS, to see all the REF data, end-to-end, for situational awareness. The REF Director's intent was to have all information related to an item (i.e., cost, schedule and performance) documented in one electronic document management system such that it can be readily available and accessible by all stakeholders. The electronic document management system was to include information such as: funding; contracting status; items fielded; item operational performance vs. expectation; value of item in the war fight; Soldier's assessment on usability, ease of use and likeability; and ATEC T&E assessment (i.e., C&L report and Safety Confirmation). Additionally, each item was to be assessed (i.e., color coded: green, amber or red) in two areas: operational performance (value to the warfighter) and programmatic performance (how well the REF is accomplishing the requirement).

That vision was realized in the form of the Director's Common Operational Picture (COP) (Figure 10) and in an automated reporting system that utilizes all REF data to produce a report on past, present and anticipated requirements and projects. Central to meeting the Director's intent is a communication capability that allows free input and

80 Dr. Robert Beckman, A Historical Review of the REF Knowledge Management System [DRAFT], Rapid Equipping Force, August 4, 2010.

output of data in a timely manner. It provides the ability to visualize the project from "cradle-to-grave." This capability provides the REF the ability to answer questions and provide data, statistics and analysis on a near-real-time basis.

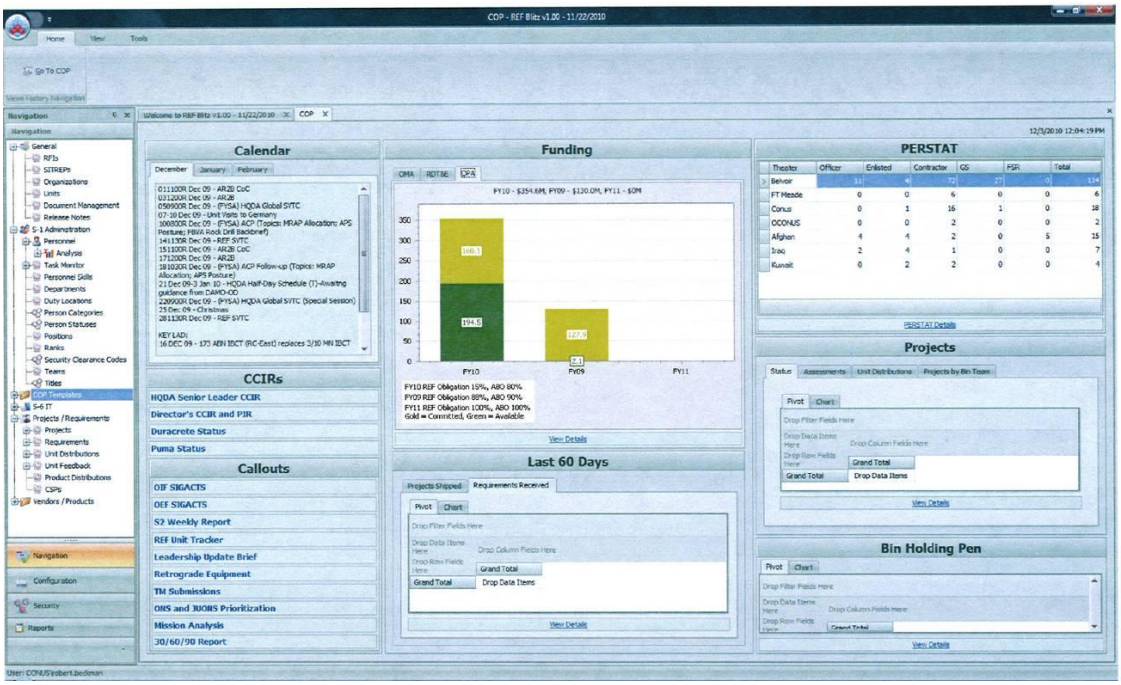

Figure 10. Common Operational Picture

As of the conclusion of our data collection, the REF Director has established high level requirements: migrate data out of STEM and into a KMS that would allow all data in the REF to be used for generating a COP, situational awareness and enterprise visibility. The rapid prototyping environment has proven ideal for the REF, given the constant flux and requests for alterations and additional, on-the-fly requirements. Although it is still a work in progress, the KMS effort is on-track to deliver an enterprise solution that compares to the best practices of knowledge management.

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V. CASE STUDY AND ANALYSIS

A comparison between the REF's rapid acquisition processes and a traditional Urgent Materiel Release program provides an opportunity to identify strengths and efficiencies of the REF process that could enhance traditional acquisition processes. For this research, a UMR program conducted by the Joint Project Manager for Nuclear, Biological, and Chemical Contamination Avoidance (JPM NBC CA) provides the comparative opportunity.

This chapter will be organized into three main sections using the major phases of the REF process as a framework: Requirements, Materiel Solution Development, and Deployment. Each section will include a discussion of the UMR case and a comparative study that analyzes aspects of the REF process that could enhance a traditional UMR.

A. BACKGROUND

In 2007, the United States Northern Command (NORTHCOM) identified a homeland defense urgent need for a Chemical, Biological, Radiological, and Nuclear (CBRN) dismounted reconnaissance capability within the U.S. Army Reserve CBRN Consequence Management Response Forces (CCMRF). NORTHCOM determined that these units lacked the equipment to perform sampling, detection and presumptive identification of the full spectrum of hazards to include toxic industrial chemical (TIC) detection and protection capability.[81] Additionally, in 2008, the U.S. Army V Corps identified an urgent need within the 12th Chemical Company for a CBRN dismounted reconnaissance capability for European theater CBRN response and OCO operational support. This unit also had inadequate capability to detect TICs and Toxic Industrial Materials (TIM) and to protect Soldiers conducting prolonged operations in such environments while dismounted.[82] The Operational Needs Statements (ONS) were

[81] U.S. Army 20th Support Command, Memorandum, SUBJECT: Operational Needs Statement (ONS) for Dismounted Chemical Biological, Radiological (CBRN) Recon Equipment Capability, Undated.

[82] Headquarters, Special Troops Battalion, V Corps, Memorandum, SUBJECT: Operational Needs Statement (ONS) for Dismounted Chemical, Biological, Radiological, and Nuclear (CBRN) Reconnaissance Equipment Capability and Training, 7 January 2008.

initiated through the Department of the Army process, but became Joint Urgent Operational Needs (JUONS) due to the joint nature of CBRN equipment procurement. The JUONS were submitted through the Joint Staff and Joint Rapid Acquisition Cell (JRAC) initiating the Joint Capabilities Integration and Development System (JCIDS) process.

B. REQUIREMENTS—JCIDS

> Al Qaeda doesn't have a JCIDS process, and we need to be able to operate much quicker and inside our adversary's decision rate.
>
> Lt. Gen. David Deptula[83]

1. UMR Case

The NORTHCOM JUONS was submitted and the Joint Staff process officially initiated in May of 2007. The JUONS was processed through the Joint Capability Development Directorate Staff (J-8), JRAC, the Joint Capabilities Board (JCB), Force Protection Functional Capabilities Board (FCB), and Budget Office Director (BOD) for validation and determination of funding allocation, in accordance with the JUONS validation and resourcing process described in Enclosure A, Figure 1 of CJCSI 3470.01. The JUONS was validated in July 2007. The validation process took about twenty days over the notional timeline prescribed in CJCSI 3470.01, consuming approximately two months from the initiation of the requirement process to requirement validation. The V Corps JUONS went through a similar process initiated in January of 2008 which was validated in March 2008 and covered roughly the same amount of time.

As part of the validation process, the BOD Board identified the Joint Nuclear, Biological, & Chemical Reconnaissance System, Increment 2 (JNBCRS2) program funding line, an existing program of record, as the source of funds for both JUONS. The

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83 James Hasik, "Al-Qaeda doesn't have a JCIDS process – thoughts about institutionalizing the rapid acquisition," James Hasik Industrial Analysis for Global Security webpage, http://www.jameshasik.com/weblog/2010/10/al-qaeda-doesnt-have-a-jcids-processthoughts-on-institutionalizing-rapid-acquisition.html, 15 October 2010.

actual funding for the effort required reallocation of approximately 8.7 and 5.3 million procurement dollars from the FY07 and FY08 budgets, respectively.[84]

2. Comparative Study

When comparing the JUONS requirements validation process to the REF requirements generation process, it becomes clear that flexibility is a primary strength of the REF. While traditional rapid initiatives must have a requirement validated through the JUONS process to initiate a UMR, the REF has the option to initiate a project based on one of several possible sources. It could be a REF Director's Initiative based on his assessment or information he has gained through interactions with Combatant Commanders, Senior Army Leadership, or deployed warfighters; it could be the result of the REF 10-Liner process generated by a forward deployed operational contact team; or, it could come through the traditional JUONS process. These options allow the REF to apply a tiered approach based on the urgency and scope of the emerging need, while the traditional JUONS validation is bound to a rigid approval process with multiple layers of oversight regardless of the scope of the emerging need. The REF's tiered approach provides a model for possibly introducing additional acquisition categories below ACAT III for rapid initiatives based on thresholds for the estimated funding requirements and the urgency of the need. These tiers could determine the level of oversight and validation necessary in the JCIDS and DAS processes.

Additionally, the REF's flexibility to use the REF Director's Initiative and the REF 10-Liner allows it to avoid the layers of bureaucracy associated with the JUONS process. These requirements generation and validation processes only need to be approved by the Army DCS G-3/5/7 (Operations, Plans, and Training). Recognizing that the reduced oversight may increase risk associated with the project, the REF developed their 10-Liner process as mitigation. It was based on a streamlined version of the Army's Operational Needs Statement and designed to succinctly and accurately capture the relevant information for the DCS G-3/5/7 to make an informed decision. As mentioned

[84] Joint NBC Reconnaissance System Increment 2 (JNBCRS 2) Urgent Materiel Release Brief to COL Burke, 16 September 2008.

previously, the effectiveness of the REF 10-Liner practice has been recognized by the DoD LSS Rapid Acquisition Process Analysis Cross Functional Team as a potential best practice for use across the Services. A process similar to the REF 10-Liner could aid in streamlining and standardizing the requesting units urgent need submission process and assist in the initial project classification to determine the level of oversight and validation necessary. In order for such an arrangement to work, it is necessary to address organizational relationships.

The REF has distinct organizational advantages over a traditional PM that are critical to the effectiveness of their requirements generation process. Because of the operational nature of urgent needs, the REF has direct lines of communication to the Vice Chief of Staff of the Army and is aligned with the DCS G-3/5/7. These relationships allow them to expedite requirements for high priority rapid initiatives, while traditional PMs do not even become a part of the requirements process until the JCB/JROC validate the requirement and the MDA for the project is identified. The traditional process to identify the lead organization for the project requires additional coordination and planning and extends the overall time from the need submission to getting the capability to the warfighter. Based on a tiered approach, the UMR process could be modified to include an additional path that allows a more direct path between the executing organization and the decision authorities in the requirements process.

Additionally, because the REF contains requirements managers, or combat developers, and materiel developers as part of the same organization, they work together on a regular basis. In some cases, a single person may be filling both roles, while the traditional Army combat developers and materiel developers are geographically and organizationally separated. This separation increases difficulties associated with a lack of familiarity, a lack of communication, and conflicting priorities which results in an inefficient process. A healthy, habitual relationship between the requirements managers and the materiel developers is critical during the early formation of the effort. An LNO from the requirements manager's organization within the materiel developer's organization or an LNO from the materiel developer's organization with the requirements manager's organization could help to bridge existing geographical and organizational

divides. The forward deployed operational contact teams are another example of how the REF has adapted their organization to streamline the process.

As organic assets, the REF's forward deployed operational contact teams provide a direct link to operational units. Their role in the REF organization increases awareness of emerging urgent needs and expedites the requirements refinement phase of the materiel solutions development process, whereas the traditional JUONS- UMR process relies on operational units to elevate the emerging need through the formal channels. While the REF's operational contact teams are familiar with their 10-Liner process, operational units usually have had limited exposure, if any, to the JUONS process. This directly affects the initiation of the validation process, and it can contribute to delays in fulfilling the need. As the role of the REF decreases, there is an opportunity for the requirements management community to leverage the practices and existing organization of the REF's operational contact teams. The REF's operational contact teams could become organic assets as part of TRADOC to provide a direct line of communication from the field with the necessary expertise and experience to streamline the process.

Finally, the budget for the UMR came from an existing funding line. These funds were initially budgeted as part of the Program Objective Memorandum (POM) process and were not programmed for the UMR project. As such, they had to be reallocated from other programmed efforts which resulted in de-scoping and delays of the follow-on increments of the JNBCRS2 program. REF projects are generally funded with supplemental appropriations. While this may not be a sustainable method of funding, it provides a model for developing a method that could be used during contingency operations without disrupting current force modernization efforts. The Defense Science Board Task Force on the Fulfillment of Urgent Operational Needs also recognized this issue. They recommended that the Executive and Legislative branches establish a separate fund for rapid acquisition and fielding.[85] Such a fund could provide an avenue to initiate projects quickly while the longer term funding necessary to sustain the capability would be handled after the project transitioned to a program of record. This

[85] Defense Science Board Task Force, "Report of the Defense Science Board Task Force on the Fulfillment of Urgent Operational Needs," July 2009, 32–33.

would reduce the amount of bureaucracy involved at project initiation and allow it to proceed into materiel solution development more quickly.

C. MATERIEL SOLUTION DEVELOPMENT PROCESS-DAS

1. UMR Case

The Joint Program Executive Office for Chemical and Biological Defense (JPEO CBD) was designated as the Milestone Decision Authority for the efforts to field equipment sets in support of these two JUONS. They were consolidated under the JNBCRS 2 program lead by the JPM NBC CA who partnered with the Edgewood Chemical Biological Center's (ECBC) Advanced Design & Manufacturing (ADM) Division. The project team executed the UMR process for the effort.

To balance responsiveness with cost risk, the subsequent JNBCRS 2 program acquisition strategy consisted of a three phased incremental evolutionary approach. The first phase, and the focus of this analysis, was to field equipment sets in support of these two JUONS, and it was designated as the JUONS Phase. This phase represents an entirely government in-house approach utilizing COTS/GOTS equipment. The next two phases were designated as the Dismounted Reconnaissance Sets, Kits, and Outfits (DR-SKO) Phase and the Monitoring & Survey Sets, Kits, and Outfits (MS-SKO) Phase. The approach with the DR-SKO Phase is also a COTS/GOTS system, but it builds on the capabilities and increases the robustness of the JUONS Phase equipment. It will extend the dismounted reconnaissance capability through the rest of the force with the opportunity to update the JUONS systems with the equipment from DR-SKO. The MS-SKO Phase will be a developmental effort that incorporates technologies and capabilities that do not exist in currently available COTS/GOTS items. Although the actual effectiveness and efficiency of the evolutionary approach is worth studying, [86] this analysis makes the assumption that the approach is valid for this situation.

The JUONS equipment sets were sized for squad-level operations and, as previously mentioned, were comprised of COTS and GOTS products. These products

[86] John T. Dillard and David N. Ford, NPS-AM-07-002, "From Amorphous to Defined: Balancing the Risks of Spiral Development," 30 April 2007.

were integrated into transportable, environmentally-controlled quadruple container (quadcon) shipping containers. These equipment sets provide dismounted warfighters and homeland defenders in select U.S. Army Chemical units of the Active and Reserve Components with a CBRN reconnaissance capability that provides commanders with battlefield and event awareness.

The JPM's JUONS program divided the timeline (Figure 11) for the effort into four distinct phases (Design, Test, Field, and Sustain) with key decision points scheduled to initiate the Design and Fielding phases. The total time between the JUONS validation and the initial fielding decision was about 14 months. The total time to field the 16 equipment sets was an additional 12 months.

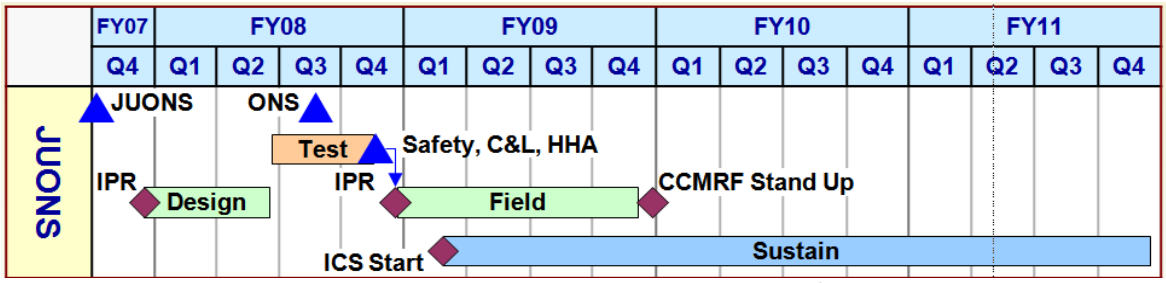

Figure 11. JUONS Phase Schedule[87]

a. Requirements Analysis

As part of their systems engineering (SE) process, the first step for the JPM NBC CA was to conduct a requirements analysis. In order to fully understand the user's needs, the JPM conducted numerous meetings with representatives from both NORTHCOM and V Corps. That process allowed the JPM to thoroughly derive the user's requirements which were subsequently decomposed into system functional requirements and specific pieces of equipment were allocated to those functional requirements.

Although this is a similar process to the stakeholder requirement definition of the traditional DAS process, the workforce in the JPM that executed the JUONS phase lacked experience in the planning and execution of the UMR process. The opportunity to

87 Joint NBC Reconnaissance System Increment 2 (JNBCRS 2) Urgent Materiel Release Brief to COL Burke, 16 September 2008.

execute this type of effort occurs infrequently, so they had to learn the process and determine how to execute it as the program developed.

As the JUONS phase dealt directly with operational units, the JPM deliberately chose a uniformed service member as the lead for the effort. Even though this created a natural connection with his counterparts in the operational units and increased warfighter confidence in the process, the JPM had to reorganize to create the JUONS team and develop working relationships with the users to accomplish these tasks. Ultimately, the requirements refinement process consumed four of the six months of the design stage of the Materiel Solution Phase.

b. Materiel Solution

Because the effort was designated as a UMR, the materiel solution process was abbreviated. Unlike a traditional ACAT III effort seeking a full materiel release, the JUONS UMR requirements for an MDA decision were limited. As directed in AR 700-142 Table 4-4 Urgent Materiel Release Documentation Requirements, the only documents required for presentation to the MDA for this effort were: 1) the JUONS from the user, 2) a safety and health hazard assessment[88], 3) the PM request for acceptance from the requestor, and 4) the requestor's acceptance statement. The airworthiness certification and EOD supportability statement were not applicable to this effort.

After the pieces of equipment were selected for the system, they had to be assessed for safety and health hazards individually and as a system. Additionally, an assessment of the system's operational effectiveness and suitability was necessary to

[88] Memorandum, U.S. Army Developmental Test Command (DTC), TEDT-TMA, 22 April 2009, subject: Amendment 1 Safety Confirmation for the Joint Nuclear, Biological, & Chemical Reconnaissance System, Increment 2 (JNBCRS2), in Support of a Joint Urgent Operational Need.

support the MDAs UMR fielding decision. The test and evaluation required for this assessment involved developmental testing and an operational assessment performed by ATEC.[89,90]

Test and evaluation activities are generally resource intensive, and this portion of the JUONS Phase required an additional six months of effort after the COTS/GOTS were selected for the system. The JPM originally planned for three months to accomplish this phase, but several factors contributed to extending that time. Specifically, the JPM misjudged the amount of funding and time required to complete the necessary testing for COTS and GOTS items; and subsequently, the JPM underestimated the coordination requirements with the test agency, the availability of test facilities, and the difficulty associated with coordination of warfighters for the operational assessment.[91] The OCO deployment operational tempo complicated the coordination of warfighter test players.

The operational assessment and developmental testing were successfully completed in August and September of 2008, respectively, which allowed the JPM to request acceptance from both NORTHCOM and V Corps in October 2008.[92,93] Those requests led to the acceptance statements from both units, and that completed the requirements necessary to return to the MDA for permission to continue with the limited fielding.

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89 Emily Yost, U.S. Army Evaluation Center, Joint NBC Reconnaissance System Increment II (JNBCRS II) JUONS Summary Brief, 18 November 2008.

90 Memorandum, U.S. Army Developmental Test Command (DTC), TEDT-TMS, 22 August 2008, subject: Safety Confirmation for the Joint Nuclear, Biological, & Chemical Reconnaissance System, Increment 2 (JNBCRS2) in support of an Operational Assessment.

91 Interview by the authors with JNBCRS2 ATEC System Team: Mr. Dough Cunningham, DTC, and Ms. Emily Yost, AEC, Aberdeen Proving Ground, MD, October 2010.

92 Memorandum, U.S. Aberdeen Test Center, TEDT-AT-WFS, 4 November 2008, subject: Final Report for the Joint Urgent Operational Needs Statements (JUONS) Test of the Joint Nuclear, Biological, Chemical Reconnaissance System (JNBCRS), ATEC Project No. 2008-DT-ATC-JNBCR-D9304.

93 Yost, Joint NBC Reconnaissance System Increment II (JNBCRS II) JUONS Summary Brief, 18 November 2008.

2. Comparative Study

a. Requirements Analysis

As discussed, the JPM relied on traditional acquisition experiences for conducting their requirements analysis. Across the JPM, the processes associated with requirements analysis are traditionally ill-defined and not readily repeatable. In some respects this is by design. It allows flexibility and tailoring to an individual program, but it also creates variability and reduces efficiency as it depends heavily on the experience of the systems engineers conducting the requirements analysis. As part of their effort to create efficiency and streamline the process, the REF developed their METT-TC-FLARS process. This process helps to ensure an accelerated, repeatable, and thorough analysis of the critical aspects of the requirements and a uniform approach to each project. It creates consistency in the analysis and the ensuing recommendations to the REF Director. The METT-TC-FLARS process could be used to develop a similar process to standardize requirements analysis practices for UMRs. The use of LNOs with the operational units is another best practice of the REF that could pay dividends.

Recognizing the importance of the needs of the end user, the REF has LNOs deployed forward to provide a direct link to the operational units. This creates a significant advantage for clarifying requirements and resolving issues during materiel solution development. As demonstrated by the JUONS case, traditional acquisition organizations like the JPM are not organized to provide that type of connectivity with the operational units. It becomes an ad hoc responsibility of one of the JPM team members to interact with the requesting unit. This type of relationship takes time to develop, and the personnel take time to gain the experience necessary to be effective in the role. One solution could be to establish an organization of REF-like LNOs that have a habitual relationship with the PM offices. The Research, Development, and Engineering

Command (RDECOM) Field Assistance in Science and Technology (R-FAST) [94,95]teams are another example of how this approach might work to support the materiel solution development.

b. Materiel Solution

The JPM and ECBC were effective with the design synthesis process of the materiel solution development. The most significant challenges occurred during the previously discussed requirements analysis process and the test and evaluation process. During this analysis it is important to understand that REF projects often receive the latitude to defer some elements of the test and evaluation desired for the fielding of an item, aside from safety. This occurs because REF projects are equipping efforts and not fielding efforts, and the expectation is that they will be more thoroughly tested if they come back through the CDRT process for fielding. Traditional UMRs like the JNBCRS 2 JUONS effort are limited fielding efforts, and the increased risk of fielding an item with deferred demonstration of operational effectiveness and suitability substantially reduces the latitude of a UMR.

While REF projects complete a very limited amount of developmental and operational testing before they can be delivered to the warfighter for use, the JNBCRS 2 JUONS program was required to complete a more thorough battery of developmental and operational testing which included an OA conducted with warfighters. The REF negotiates the level of testing with ATEC on a project-by-project basis in accordance with the urgency, technical maturity level of the item and equipping plan, while there is little, if any, latitude for UMR programs to negotiate because of the risks associated with a fielding. One possible solution is to create guidelines based on the tiered approach to establish a starting point for negotiating an appropriate level of testing based on the scope of the UMR program. The amount necessary could be tailored based on the urgency,

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94 Julie Cupernall, "FAST: Field Assistance Science and Technology: getting soldiers what they need," *Soldiers Magazine*, May 2006.

95 Steve Rochette, "Field Assistance Team Focuses on Soldier Feedback," Army.mil webpage, http://www.army.mil/article/14400/field-assistance-team-focuses-on-soldier-feedback/, 20 November 2008.

technical maturity level and cost risk associated with the materiel solution. Early involvement from ATEC would be critical for this approach.

The REF has resident ATEC LNOs as part of their organization to facilitate timely planning and execution of testing efforts. These ATEC LNOs participate in the daily updates to the REF Director which gives them insight into the current and planned projects. It allows them to provide test expertise during planning, and it gives them the information necessary to coordinate test activities and requirements with the appropriate test agency and test facilities early in the process. This test expertise is essential to assuring that delays due to testing requirements are minimized. Unfortunately, the JPM does not have an ATEC LNO that resides in their office. There is an ATEC LNO that resides at the JPEO headquarters, but this ATEC LNO is expected to cover seven JPMs that are spread across the country. Although most program test engineers are aware of the ATEC LNO's presence, the ATEC LNO is underutilized because there are not clearly established practices to make effective use of his services. An increased presence of ATEC LNOs with clearly defined roles within the PEOs and PMs and guidelines for the planning and execution of necessary test and evaluation activities for UMRs could result in a much more efficient process. TDEs after the unit is equipped are another tool that could help to streamline test and evaluation requirements.

The in-theater ATEC FOA team assessments are an additional resource occasionally available to the REF. As discussed previously, the ATEC FOA teams conduct TDEs which can be used to update C&L reports and improve suitability data. These events can provide essential information to Army leadership and acquisition decision makers for disposition determination of the items. The TDEs can also provide a means to follow up on systems that are rapidly "equipped" with deferred testing and expand the user's knowledge of materiel capabilities and limitations. These teams are a scarce but valuable resource. The likelihood of a UMR receiving their services is low without a significant amount of coordination and high visibility of the project because of the scarcity of the resource. An increase in the size of the ATEC FOA teams or increased visibility and prioritization of UMR programs for TDEs could facilitate more efficient use of this capability and result in quicker equipping of the gaining command.

Another organizational advantage is the designation of the REF Director as the decision authority. This arrangement reduces layers of bureaucracy necessary to make programmatic decisions. The direct lines of communication to Army leadership and the linkage to the semiannual program reviews with the AAE allow the REF Director to operate with authority while maintaining accountability. This structure gives the project leaders access to the decision authority on a daily basis. Conversely, the MDA for the JNBCRS2 JUONS is the JPEO CBD. Most interactions with the JPEO are formalized because of the range of his responsibilities. Formal reviews and decision briefs are generally staffed through the product manager, project manager, and JPEO staff prior to briefing the MDA. These layers of bureaucracy create significant delays and long processing and approval times for any required documentation or programmatic decisions and reduce the responsiveness of the UMR process. Based on a tiered approach, some decision authority and accountability should be pushed down to the product and project manager level. The level of decision authority should be based on the associated urgency, technical maturity level and cost risk associated with the effort.

In addition to the organizational advantages, the REF also has advantages in the composition of its workforce. The REF workforce is intentionally staffed with active duty and civilian personnel with operational military experience. This experience positions them to make critical decisions in a timely manner while considering the needs of the warfighter. It also gives them significant credibility with the operational community. The JNBCRS2 JUONS team recognized the value of that credibility as well. As a result, the JPM appointed a uniformed service member as the JUONS team leader. Although this served the program well, there are a limited number of military acquisition professionals in the JPM. The majority of the JPM workforce does not have military experience or an operational background, so there is not enough of that perspective to spread around the organization. One solution could be to increase the number of military acquisition professionals with operational experience within the PM organizations. Another could be the development a corps of civilian employees that have experience

interacting with operational organizations. This could be accomplished through developmental assignments and tailored training focused on the operational forces that the PM supports.

As a final point in the materiel solution development, one of the most significant advantages the REF workforce owns is their experience level with rapid initiatives. The REF workforce has the benefit of specializing in rapid projects. They have become subject matter experts in their processes, while traditional PM employees have very limited opportunities to execute rapid projects. The JPM workforce faced an extremely steep learning curve which was most evident in the requirements analysis and testing of the system. There were decisions and assumptions made that adversely affected the duration of the program due to the inexperience of not only the JPM workforce, but also the MDA, contracting officers, and evaluators The infrequent occurrence of UMRs and the inexperience that followed not only affected the duration of the program but the deployment of the system as well. Because it is not practical to rely on increased opportunities to execute rapid projects to build these skills, it is critical to capture the experiences and process of organizations like the REF. That knowledge must be used to develop repeatable processes that traditional PM organizations can execute. It would also be beneficial to maintain a rapid cell as a center of excellence that can execute projects and serve to advice and guide traditional organizations executing rapid acquisition projects.

D. DEPLOYMENT

1. UMR Case

a. Deployment

The deployment stage of the JUONS phase consisted of the coordination for fielding and conducting the New Equipment Training (NET) necessary to get the equipment into the hands of the users. Even though this only represented 16 sets of equipment and the JUONS team leveraged the JPM NET fielding team, the complexity of the effort required almost a full year to complete. This process was exacerbated by unanticipated operator certification requirements for elements of the personal protective

equipment and a large number of man-machine interfaces that required training for the COTS items. Again, this was an example of learning the complexity of rapid fielding initiatives as the program developed.

b. Transition

The transition of these equipment sets required a sustainment strategy to keep the systems viable until the DR-SKO could be fielded and a more permanent and appropriate sustainment approach could be implemented. The interim support strategy makes use of an umbrella CBRN Contractor Logistics Support (CLS) contract that began in December 2008.[96]

2. Comparative Study

a. Deployment

The strength of the REF during the Deployment phase is again the result of their organizational structure and the experience of its workforce. They are organized to be self-sufficient for system deployment with specialized cells to conduct warehouse operations, shipping and delivery, and training. These cells have the same advantages of repetition and experience as the materiel solution development workforce because their role is specific to the deployment of rapid initiatives. In this case, the NET team executing JUONS deployment had the same benefit of specificity. They were accustomed to traveling to the gaining unit to deliver systems and conduct NET for traditional acquisition items. As previously discussed, their difficulties were based on the unanticipated training requirements and the large number of systems associated with the program. As stated in the assessment in the materiel solution development section, the logistics community should consider maintaining the REF logistics group as a center of excellence for the fielding of urgent needs. This group could provide guidance on the intricacies of urgent need system deployment to traditional PM logisticians.

[96] Interview by the authors with Major Scott Schroer, JNBCRS2 Team Lead, and the JNBCRS2 Team, Aberdeen Proving Ground, MD, July-October 2010.

b. Transition

Similar to the deployment phase, the REF practices and processes for the transition of the items to the gaining command did not provide an appreciable advantage over the JPMs activities. The JPM experience with sustainment planning translated well to the JUONS program.

E. SUMMARY

This comparison of the JNBCRS2 UMR effort and the established REF processes provided valuable insight into aspects of the REFs rapid acquisition practices that could enhance areas within the UMR process. It provides a prime example of the need for guidance and procedures in addition to policy. Without it, the JPM NBC CA was forced to interpret the UMR policies and determine how to implement them resulting in significant challenges. These analyses identify REF lessons learned, potential immediate improvements to the UMR process, and areas that deserve further study. The final chapter examines the research questions and captures the conclusions and recommendations that resulted from this case study and the research of the REF rapid acquisition process.

VI. CONCLUSIONS AND RECOMMENDATIONS

Since World War II, a variety of approaches have been employed to speed the acquisition process during each of the nation's conflicts. However, none of these efforts lasted beyond their initial implementation for a number of reasons. First, rapid acquisition organizations lacked sufficient funding to continue their programs beyond procurement and fielding of the initial small number of systems or to allow transition of their projects to the regular acquisition process. Second, as the immediate threats decreased, the number of urgent requests from the field also decreased, consequently, the need for rapid or streamlined acquisition decreased. Because the warfighter was willing to wait for the materiel solutions, there was more time available and less incentive for the PM to assume the risks associated with streamlining the acquisition process. In other words, schedule became less important than cost and performance. Finally, oversight, control, politics and the necessity to defend systems and their budgets took control of the process.

One of the DAPA findings was that the Department must be agile—to an unprecedented degree—to respond quickly to urgent operational needs from across the entire spectrum of potential conflicts. Consequently, during the last decade, the Army has utilized a number of processes to equip units participating in OCO with new systems to increase the capability of deployed forces. The REF is one initiative that demonstrated some effective rapid acquisition processes that could be implemented as part of traditional acquisition, especially as part of the UMR process.

This chapter is broken down into two major sections. The first examines the primary and secondary research questions, providing a brief examination of each. The second section provides conclusions and recommendations derived from the analysis.

A. RESEARCH QUESTIONS

The contingency funding that the REF relies on to execute its mission is not sustainable. As that funding source diminishes with the planned draw downs in Iraq and Afghanistan, it is highly likely that the REF organization's role will also diminish.

Before that happens, there is an opportunity to examine the processes and practices the REF has developed over that last eight years of operation to determine how they might be leveraged to enhance our existing acquisition processes and practices.

1. Primary Research Question

The primary purpose of this research was to capture the REF's processes, practices and lessons learned to answer the following question:

> **What Army REF processes, practices and lessons learned should be considered by the Army within its streamlined acquisition process—Urgent Materiel Release (UMR) Process—to increase responsiveness to the warfighter?**

The REF has effectively utilized processes and practices created to manage the urgent need requests from the field using existing policy. The Case Study and Analysis Chapter provided the comparative analysis of the REF process and practices identified in the Process Chapter and a UMR case to identify those processes, practices and lessons learned that merit consideration. As a result of that comparative analysis, the authors came to set of conclusions and recommendations to improve the execution of streamlined acquisitions which focused on innovative methods the REF used for identifying capability requirements, analyzing and validating the requirements, producing materiel solutions and deploying those solutions to the battlefield expediently. Some of the key REF practices, such as the REF 10-Liner to capture urgent requirements in the field, METT-C-FLARS to analyze the requirement, the REF Binning Methodology for categorizing and prioritizing projects, and the BLITZ COP for tracking project status, heavily influenced the conclusions and recommendations summarized in Figure 12. Additionally, the REF concept for using integrated product teams and liaison officers to bring key stakeholders (User, Acquisition and T&E community) together as a team to increase responsiveness to the warfighter is another major theme of the conclusions and recommendations. A more in-depth discussion of the conclusions that lead to those recommendations will follow in the final section of this chapter.

STREAMLINED ACQUISITION PROCESS IMPROVEMENT RECOMMENDATIONS

Requirements—JCIDS

- Create tiered categories below the ACAT III designation within JCIDS for rapid initiatives. Classify the tiers according to thresholds for the estimated cost and urgency of the acquisition effort and designate the levels of oversight and validation necessary.
- Incorporate a process similar to the REF 10-Liner to streamline and standardize submission process and aid in project classification.

Acquisition—DAS

- Develop rapid initiative specific guidance based on the REF's METT-TC-FLARS process to create a streamlined, repeatable process for conducting requirements analysis.
- Tailor the amount of testing and associated OA based on the urgency, technical maturity level and cost risk associated with the system(s) based on the tiered approach with more robust follow-on testing planned to confirm the effectiveness, suitability and survivability of the system(s).
- Incorporate TDEs conducted by the ATEC FOA teams as a risk reduction measure for the tiered approach provide forward operational assessments as part of the robust follow-on testing.
- Develop a standardized COP/project management system to provide situational awareness and visibility of projects across the three major acquisition systems (JCIDS, DAS, PPBES).

Budget—PPBE

- Establish a specific funding line for rapid acquisition projects that is not tied to specific "colors" of money.
- Develop funding threshold criteria that align with the tiered approach.

Workforce

- Increase the number of military acquisition professionals in PM organizations and develop a corps of civilian employees that has experience interacting with operational organizations.
- Maintain a rapid cell as a center of excellence that can advise and guide traditional acquisition organizations and provide training to PMs during rapid projects.
- Develop a core of subject matter experts in contracting for rapid acquisition projects.

Organization

- Reduce the level of decision authority and oversight for urgent needs projects based on a tiered approach organized according to the associated technical maturity level and cost risk of the effort.
- Incorporate LNOs from the requirements community into the PM offices to develop habitual relationships.
- Increase the number of ATEC LNOs within the PMs to increase the efficiency of test and evaluation activities.
- Transfer the operational contact team approach to the requirements community to increase responsiveness to emerging needs by reducing the lines of communication from the warfighter to the requirements community and increase efficiency for accurately capturing the information required to make informed decisions. Additionally, these teams should maintain habitual relationships with the PMs.
- Maintain the REF logistics group as a center of excellence for the fielding of urgent needs to provide guidance on the intricacies of urgent need system deployment to traditional PM logisticians.

Figure 12. Streamlined Acquisition Process Improvement Recommendations

2. Secondary Research Questions

In addition to the primary research question, this research addressed three secondary questions. The first question focused on the existing policies in place for rapid acquisition.

a) Does the Army have clear policies and guidelines in place regarding management of rapid acquisition items?

As evidenced by the summaries in the Policies Chapter, there are existing policies in place to allow rapid acquisition activities. Unfortunately, even though both the DoDI 5000.02 and AR 70-1 have been updated since the beginning of the current OCO, they still do not provide definitive guidance and procedures. While the current policies allow for flexibility, this approach creates variability in effectiveness and responsiveness because each executor has to develop their own processes to implement those policies. As discussed in the Case Study and Analysis Chapter, if an organization is not experienced with rapid projects, the time required to interpret policy and determine how to execute within it reduces the efficiency and effectiveness of the project in terms of responsiveness.

The second question focuses on the REF processes that have evolved over the last eight years of execution.

b) What processes has the REF implemented to ensure responsiveness?

The REF has incorporated the same tenet that the DAPA Panel presented in regards to delivering military capability. They both embrace the idea that developmental programs must change from a focus on 100 percent performance in the first production lot to focus on delivering useful military capability to reduce schedule. Since its inception, the REF has evolved its processes to maximize responsiveness while operating within existing policy. These processes represent a microcosm of the three major systems involved in the acquisition of DoD equipment: JCIDS, DAS, and PPBE. They cover their requirements generation process; their materiel solution development and equipping processes; and their funding process. The Process Chapter documents

these processes and while highlighting REF unique practices such as the REF 10-Liner requirements generation form, their project binning system, the METT-TC-FLARS requirements analysis process, and the BLITZ COP for tracking project status. Additionally, the chapter provides the basis for comparison and analysis to answer the final question.

This question provides the impetus to compare those REF processes and practices to an actual UMR case for analysis to answer the main research question.

c) How do REF processes and practices compare to a streamlined acquisition case?

This project compared the REF processes and practices with the JNBCRS UMR case to identify possible areas for improvement. The Case Study and Analysis Chapter conducted the comparative analysis and identified that the REF's processes and practices do provide some potentially significant advantages or insights into areas ripe for improvement. Specifically, the REF requirements generation and validation processes and practices are notably more flexible with less bureaucratic oversight than the JUONs process. Additionally, the REF has evolved their processes for requirements analysis and materiel solution development to ensure repeatability and responsiveness, while the streamlined acquisition case required a major on-the-job learning curve for the PM due to a lack of definitive guidance or procedures. The REF also held a considerable advantage over the PM in the case due to their workforce composition and experience, as well as their organizational structure and alignment. Their workforce had the benefit of experience because they specialized in rapid equipping projects. The practice of developing a REF workforce composed of employees with operational experience provided insight and understanding of the user requirements that were not readily apparent to the PM workforce. Furthermore, the REF was organized to leverage liaisons and forward deployed elements as part of its core team while the PM had to rely on existing relationships with key stakeholders that are separated geographically and organizationally. And finally, the REF was organizationally aligned with key decision makers in a manner that allowed them to expedite critical decisions. The PM used their traditional channels for key decisions through their MDA which slowed their process. A

discussion of how these potential advantages might be applied to the streamlined Army acquisition process is presented in more detail as part of the conclusions and recommendations below.

B. CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations are organized to build on the framework of categories established in the DAPA Report: Requirements, Acquisition, Budget, Workforce, and Organization. Even though the operational tempo of the war has raised industry interest in the development of technologies for the DoD, the industry category was not assessed as part of this research paper because the analysis did not identify any significant advantages in the way the REF worked with industry on rapid projects when compared to the UMR case study.

1. Requirements—JCIDS

Our assessment is that the current requirements process does not meet the needs of the current security environment or the standards of a successful acquisition process.

–The DAPA Panel[97]

The JCIDS requirements process is a top down driven, sequential process. It provides a deliberate method for identifying and defining new capabilities required to defeat threats to our national security which ensures that any new requirement is well defined and is integrated into an overall warfighting capability that supports the national defense strategy. This process ensures that the DoD makes informed decisions as new requirements compete for priority and funding with existing capabilities and other new requirements and chooses the most effective technologies to meet the warfighter's needs. However, it is not designed to respond rapidly to emerging needs or requirements coming from the bottom up. To that end, there are policies in place to allow for bottom up requirements to meet urgent needs.

[97] Assessment Panel of the Defense Acquisition Performance Project, Defense Acquisition Performance Assessment (DAPA) Report, January 2006, 35-36.

Most of the comments that the DAPA Panel received concerning JCIDS found it too complex, with little value in defining capabilities that require Materiel Solutions. In addition, the House Armed Services Committee Panel on acquisition reform found that the "current system for satisfying Joint Urgent Operational Needs (JUONs) works best when it is being directly tasked by the Secretary of Defense"[98]; however, it is not feasible for the Secretary of Defense to personally participate on all JUONs. Additionally, it is a "one size fits all" approach that must follow the CJCSI 3470.01 guidance which is time consuming and requires participation from the J-8, JRAC, JCB, FCB, and BOD. Although this level of validation may be appropriate to manage high risk and high cost efforts, it is not efficient for smaller efforts with lower risk.

As discussed in the analysis, the REF requirements validation process is more flexible than the JUON process. It allows the REF Director, with technical information gathered by his team and the oversight of the Army G-3/5/7 and the AAE, to determine and approve requirements. Because of this process the REF has been effective in maintaining focus and being responsive to the urgent need at hand.

Additionally, the REF's binning system provides a model for a tiered approach for categories below the ACAT III designation for rapid initiatives. These tiers could be used to establish the priority of the effort and levels of oversight and validation necessary in the requirements generation process. Thresholds based on the estimated cost of the acquisition effort and the urgency of the need could determine the associated tier for the project to maximize responsiveness while minimizing the risk associated with the effort.

Recommendation:

- Create categories below the ACAT III designation for rapid initiatives to support a tiered approach in the JCIDS. The tiers could be similar to the REF's binning system and could be classified according to thresholds for the estimated cost of the acquisition effort and the urgency of the need. The designated tier could determine the levels of oversight and validation necessary in the requirements generation process.

Currently, the methods to generate urgent needs vary by Service. These processes are not well defined or understood by the submitting organizations which results in

98 House Armed Services Committee Panel on Defense Acquisition Reform Findings and Recommendations, March 23, 2010.

varying degrees of effectiveness when communicating the need and ensuring validation of the requirement. The REF has developed their REF 10-Liner to standardize and simplify this process. It was based on a streamlined version of the Army's Operational Needs Statement and designed to succinctly and accurately capture the relevant information to facilitate an informed decision. The effectiveness of the REF 10-Liner practice has been recognized by the DoD LSS Rapid Acquisition Process Analysis Cross Functional Team as a potential best practice for use across the Services.

Recommendation:

- Incorporate a process similar to the REF 10-Liner to streamline and standardize the requesting units' submission process and aid in the project classification.

2. Acquisition—DAS

The Department of Defense's one size fits all acquisition program structure does not meet the diverse capability and rapid time of delivery needs that are typical of a rapidly changing security environment.

–The DAPA Panel[99]

The first steps in the acquisition process after the requirements are generated and validated is the requirements analysis process. In the case study, the JPM's requirements analysis process relied upon traditional acquisition practices and experiences that were ill-defined and not readily repeatable which created variability and reduced efficiency. The REF's METT-TC-FLARS process facilitates an accelerated, repeatable, and thorough analysis of the critical aspects of the requirements and a uniform approach to each project. This could serve as a model to develop a similar process to standardize requirements analysis practices for UMRs.

[99] Assessment Panel of the Defense Acquisition Performance Project, Defense Acquisition Performance Assessment (DAPA) Report, January 2006, 48.

Recommendation:

- Develop rapid initiative specific guidance based on the REF's METT-TC-FLARS process to create a streamlined, repeatable process for conducting requirements analysis.

After the requirements analysis process, the PM experienced some of their most significant challenges with test and evaluation activities. Once again, it is important to recognize the distinctions between the REF's equipping activities and the UMR fielding activities, but the practices that the REF developed with ATEC are worth leveraging for UMRs where possible and appropriate.

Although there were different levels of fidelity between developmental and operational testing of REF projects and the UMR case study because of the equipping versus fielding distinction, the latitude afforded to the REF projects allowed them to be more responsive when time was a critical constraint. To create consistency in the testing of UMR programs and still maintain flexibility, it should be possible for the PM to negotiate the level of testing required with ATEC on a project-by-project basis in accordance with the urgency, technical maturity level of the item and fielding plan. The creation of a set of guidelines based on the tiered approach would establish a starting point for negotiating an appropriate level of testing tailored to the urgency, technical maturity level and cost risk associated with the proposed materiel solution. This would allow the acquisition community to do the minimum amount of T&E necessary to get the item to the warfighter while planning to do more robust follow-on T&E. The early involvement from ATEC would be critical for this approach, and the ATEC Mission Based Test and Evaluation (MBTE)[100] initiative provides an opportunity to facilitate that early involvement.

[100] U.S. Army Test and Evaluation Command Interim Policy Guidance 10-5, Mission Based Test and Evaluation (MBT&E), 2010.

Recommendation:

- Tailor the amount of testing and associated OA in accordance with the urgency, technical maturity level and cost risk associated with the system(s) based on the tiered approach with more robust follow-on testing planned to confirm the effectiveness, suitability and survivability of the system(s). Guidelines could be developed to help define acceptable amounts of test and evaluation based on the project classification.

TDEs after the unit is equipped are one method to execute the follow-on testing. The in-theater ATEC FOA team assessments are a resource that could conduct TDEs to update C&L reports and improve suitability data. These events could provide the essential information Army leadership and acquisition decision makers need for disposition determinations of the items. The TDEs provide a means to follow-up on rapidly "equipped" systems with deferred testing to expand the user's knowledge of materiel capabilities and limitations.

Recommendation:

- Incorporate TDEs conducted by the ATEC FOA teams as a risk reduction measure for the tiered approach provide forward operational assessments as part of the robust follow-on testing.

Although it was not discussed in the analysis chapter, the REF's knowledge management system (BLITZ) provides a common operating picture with automated reporting. Unlike the Department of the Army Equipment Common Operating Picture (ECOP) which is a web-based database for requesting and sourcing ONSs, BLITZ is a unique capability developed specifically for the REF to provide the ability to visualize the project from "cradle-to-grave." BLITZ was necessary because of the complexities of the business systems involved in rapid initiatives. Those same complexities are multiplied in traditional acquisitions, and there is no standardized system to provide leadership with situational awareness and visibility. This type of system could assist in the synchronization of critical events and status monitoring of key documents in major acquisition programs as well as rapid initiatives across the three major acquisition systems (JCIDS, DAS, PPBES).

Recommendation:

- Develop a standardized COP/project management system to provide situational awareness and visibility of projects across the three major acquisition systems (JCIDS, DAS, PPBES). The REF's Blitz could be used as a starting point for identifying functionality requirements.

3. Budget—PPBES

Where's the money? That stovepipe tends to operate independently of the requirements…to say that they are integrated is an overstatement.

–Dr. James I. Finley [101]

In addition to requirements generation and acquisition activities, funding for urgent needs is problematic. Our current PPBES is tied to long range planning for programs based on the POM cycle. Unless there is contingency funding available, the cumbersome process of reprogramming funds is necessary to fund urgent needs. Although this process is effective for forcing accountability and the balancing of budgets, it has a negative effect on responsiveness.

In the case study and analysis, the funding for the UMR came as a result of the reprogramming process while REF projects are generally funded with supplemental appropriations. The Defense Science Board Task Force recognized this issue and recommended the establishment of a separate fund for rapid acquisition and fielding.[102] Such a fund could provide an avenue to initiate projects quickly while the longer term funding necessary to sustain the capability would be handled after the project transitioned to a program of record. This would reduce the amount of bureaucracy involved at project initiation and allow it to proceed into materiel solution development more quickly.

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[101] Dr. James I. Finley, Deputy Under Secretary of Defense (Acquisition and Technology), "Pushing for a Sense of Urgency," *Defense AT&L Magazine*, Nov-Dec 2006.

[102] Defense Science Board Task Force, "Report of the Defense Science Board Task Force on the Fulfillment of Urgent Operational Needs," July 2009, 32-33.

Recommendation:

- Establish a specific funding line for rapid acquisition projects that is not tied to specific "colors" of money to allow spending flexibility to meet urgent needs.

Because the REF has the flexibility to choose which projects they will execute, a major decision criterion is funding. The level of funding directly affects the level of contracting activities that is required, and the level of contracting activities is directly related to the timeliness of the project. Although the JNBCRS2 JUONS case study does not provide a good point of comparative analysis because of the associated procurement costs, it is still worth discussing the REF's practices as they relate to funding levels.

As stated by General Chiarelli, Vice Chief of Staff of the Army, "We have a procurement system that is exceedingly slow. We have to find a way, with technologies changing so quickly, to speed up our procurement process, to be more nimble".[103] To speed up the procurement process, the REF has identified certain funding levels as part of its binning process. The REF will give higher priority to projects that can be executed under the limits that allow the use of the government purchase card. The use of the purchase card allows the REF to minimize contracting activities whenever possible. The next threshold is at $1M after which the level of contracting activities increases. The REF is subject to the same contracting requirements as every other DoD organization, and regimented contracting processes with multiple layers of bureaucracy to reduce risk increase the execution time of the project.

Recommendation:

- Develop funding thresholds based on contracting criteria that aligns with the previously recommended tiered approach for designated projects.

[103] Erwin, Sandra, "Army's Vice Chief: We Have to Speed Up How We Buy Things," *National Defense Magazine*, October 2009.

4. Workforce

A successful program requires a professional workforce with subject matter expertise.

The DAPA Panel[104]

The experience level and background of the workforce executing rapid acquisition projects can be critical. The composition and experience of the REF workforce provided them with a significant advantage for executing their mission effectively. Intentionally staffing with active duty soldiers and civilian personnel with operational military experience positioned them to make critical decisions in a timely manner while considering the needs of the warfighter. It also gave them significant credibility with their customers. It's not feasible to take that approach with the greater acquisition workforce, but the number of military acquisition professionals with operational experience within the PM organizations could be increased. There could also be an increased emphasis on the development of a corps of civilian employees to give them experience interacting with operational organizations. Developmental assignments to include participation as part of FOA teams and tailored training focused on the operational forces that the PM supports could be instrumental in accomplishing this objective.

Recommendation:

- Increase the number of military acquisition professionals in the PM organizations and develop a corps of civilian employees that has experience interacting with operational organizations.

The most significant advantage was the REF workforce experience level with rapid initiatives. They have become subject matter experts because they specialize in rapid projects. There was an extremely steep learning curve associated with the JPM's execution of the UMR in the case study that resulted in inefficiencies and underestimating the impacts of certain decisions. The infrequency of opportunities to execute UMRs will likely be a common issue for traditional PMs that execute future UMRs. As it is not practical to rely on increased opportunities to execute rapid projects

[104] Assessment Panel of the Defense Acquisition Performance Project, Defense Acquisition Performance Assessment (DAPA) Report, January 2006, 28.

to build these skills, it becomes essential to capture the experiences and process of organizations like the REF to develop repeatable processes that traditional PM organizations can execute. Maintaining a rapid cell as a center of excellence that can execute projects and serve to advise and guide traditional organizations executing rapid acquisition projects will help to ensure this capability is sustained.

Recommendation:

- Leverage the experiences and processes of the REF by maintaining a rapid cell as a center of excellence that can advise and guide traditional PMs during a rapid project.

In response to the challenges associated with contracting activities, the REF recognized the need to have contracting professionals as a part of their workforce. The REF has addressed contracting responsiveness problems through an agreement with the contracting office to dedicate seven employees to REF projects. The REF approach will ensure that a group of contracting professionals develops core competencies in rapid projects.

The contracting office has traditionally organized itself to support the PM through habitual relationships. This approach works well for traditional acquisitions, but, unfortunately, the contracting support for the PM during rapid initiatives will have the same issues as the PM workforce because of a lack of opportunity. The learning curve will be high for each project. The contracting community should consider developing a rapid initiatives team that will gain experience and become subject matter experts on the common issues and best practices for rapid acquisitions.

Recommendation:

- Develop a core of subject matter experts in contracting for rapid acquisition projects.

5. Organization

Successful organizations have short, unambiguous lines of communication among levels of management, small staffs of highly competent professional personnel.

–The Packard Commission, June 1986[105]

In addition to the composition of their workforce, the REF has distinct organizational advantages over a traditional PM that significantly reduces their bureaucratic challenges. The REF had direct lines of communication to key decision makers and authority and accountability are pushed down to the lowest level feasible. The REF Director acts as the decision authority with semiannual program reviews with the AAE to maintain accountability. This provides a good model to incorporate into the suggested tiered approach to reduce the layers of bureaucracy associated with traditional UMR process. The level of decision authority and oversight requirements in the tiered approach should be based on the associated urgency, technical maturity level and cost risk associated with the effort.

Recommendation:

- Reduce the level of decision authority and oversight for urgent needs projects based on a tiered approach organized according to the associated technical maturity level and cost risk of the effort.

The REF use of requirements managers, or combat developers, and materiel developers as part of the same organization allows them to work together on a regular basis. In some cases, a single person may be filling both roles, while the traditional Army combat developers and materiel developers are geographically and organizationally separated. This separation increases difficulties associated with a lack of familiarity, a lack of communication, and conflicting priorities which results in an inefficient process. Healthy, habitual relationships between the requirements managers and the materiel developers are critical during the early formation of the effort. An LNO

[105] Assessment Panel of the Defense Acquisition Performance Project, Defense Acquisition Performance Assessment (DAPA) report, January 2006, 24.

from the requirements manager's organization within the materiel developer's organization or an LNO from the materiel developer's organization with the requirements manager's organization could help to bridge existing geographical and organizational divides.

Recommendation:

- Incorporate LNOs from the requirements community into the PM offices to develop habitual relationships.

The REF's use of a resident ATEC LNOs as part of their organization facilitates timely planning and execution of testing efforts. These ATEC LNOs participate in the daily updates to the REF Director which gives them insight into the current and planned projects which allows them to provide test expertise during planning. Similar to MBTE, it focuses on early planning to provide the information necessary to coordinate test activities and requirements with the appropriate test agency and test facilities. The JPM did not have a similar arrangement with ATEC. Although there is an ATEC LNO that resides at the JPEO headquarters, this ATEC LNO is expected to cover seven JPMs that are spread across the country. An increased presence of ATEC LNOs with clearly defined roles within the PEOs and PMs and guidelines for the planning and execution of necessary test and evaluation activities for UMRs could result in a much more efficient process.

Recommendation:

- Increase the number of ATEC LNOs within the PMs to increase the efficiency of test and evaluation activities.

Forward deployed REF operational contact teams are another example of the REF's effective use of LNOs. They provide a direct link to the operational units which creates a significant advantage for clarifying requirements and resolving issues during materiel solution development. Traditional acquisition organizations like the JPM are not organized to provide that type of connectivity with the operational units. That connectivity becomes a responsibility of a JPM team member, and that type of relationship takes time to develop. The establishment of an organization of forward deployed REF-like LNOs that have a habitual relationship with the PM offices could increase the effectiveness of traditional organizations executing rapid projects. The

Research, Development, and Engineering Command (RDECOM) Field Assistance in Science and Technology (R-FAST)[106,107] teams are another example of how this approach can be applied.

As the role of the REF decreases, there is an opportunity for the requirements management community to leverage the practices and existing organization of the REF's operational contact teams. The REF's operational contact teams could become organic assets as part of TRADOC to provide a direct line of communication from the field with the necessary expertise and experience to streamline the process.

Recommendation:

- Transfer the operational contact team approach to the requirements community to increase responsiveness to emerging needs by reducing the lines of communication from the warfighter to the requirements community and increase efficiency for accurately capturing the information required to make informed decisions. Additionally, these teams should maintain habitual relationships with the PMs.

During the Deployment phase, the experience of the REF workforce is again a major asset. They are organized into self-sufficient cells that have the advantages of repetition and experience of the logistics workforce. As previously discussed in the materiel solution development and deployment sections of the analysis, the logistics community should consider maintaining the REF logistics group as a center of excellence for the fielding of urgent needs. This is a group that could provide guidance on the intricacies of urgent need system deployment to traditional PM logisticians.

Recommendation:

- Maintain the REF logistics group as a center of excellence for the fielding of urgent needs to provide guidance on the intricacies of urgent need system deployment to traditional PM logisticians.

C. SUMMARY

DoD operates under mountains of policies, regulations, and oversight. Well-meaning statutes and regulations have become so complex and constraining that in many cases they become an impediment to the process. Regulations designed to prevent

106 Cupernall, "FAST: Field Assistance Science and Technology," May 2006.

107 Rochette, "Field Assistance Team Focuses on Soldier Feedback," 20 Nov 2008.

mistakes and fraud have created a zero-tolerance environment in which risk avoidance translates to higher costs, longer schedules, and poor decision making. While painful, a comprehensive review of acquisition laws and regulations needs to be conducted to eliminate unnecessary regulations that have become obstacles and are not value added to the acquisition process. One of the major goals of the review should be to eliminate waste and improve responsiveness. In the case of rapid acquisition, processes need to be well defined and documented, and the acquisition workforce must be trained and organized to execute them efficiently.

Changes to improve effectiveness and responsiveness are not without risk. The problems that affect effectiveness and responsiveness have been identified multiple times and implementation criteria have even been defined by some; however, defining new processes and implementing institutional culture change in an organization like the DoD is extremely difficult. The current DAS is the product of over 50 years of evolution, and even though it has it flaws, it has produced some of the finest military equipment in the world; but, external factors are creating new rules of engagement which are forcing us to adapt quickly or be forced to fight with outdated and ineffective equipment and technology. The Army rapid acquisition processes, especially those of the REF, have given us a window into what can be done within the established laws and regulations. Additionally, the T&E community has been transformed by the rapid acquisition process, "(a)s a result of the war in Iraq and the rapid fielding required for some systems, the acquisition process is evolving into one that uses a more iterative approach, with smaller and earlier tests as opposed to the pass/fail operational test of the past. Items will be fielded as tests are ongoing, and the results of that testing will be applied to the next iteration of the system to be fielded." [108]

The pioneering and creative processes and practices developed by the REF can be lasting legacies that serve the needs of the Army now and into the future if we capture them and take advantage of them now. The acquisition and T&E communities have an

[108] Myles and Cast, "Army Test and Evaluation Command Makes Rapid Acquisition a Reality," September 2006.

opportunity to use the REF processes, practices, and lessons learned to bring meaningful change to our rapid acquisition system and position us to maintain our dominance on the battlefields of the future.

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APPENDIX

Rapid Equipping Force Mission Analysis Template

Rapid Equipping Force Mission Analysis Template

Considerations from a REF Perspective

ver. Jan 2010

1

Mission Analysis

Administrative Instructions (How To)

1. Intent is to assist the Bin Team [and Staff] analyze relevant factors of *METT-TC-FLARS* from a REF perspective in order to develop an informed recommendation to the REF Director.

2. Bin Team analyzes all 11 factors of METT-TC-FLARS. For each factor, Bin Team decides if the factor should receive a score of "GO" or "NO GO."

3. Once all 11 factors of METT-TC-FLARS have been analyzed and scored, the team will consolidate scores (total number of GOs & NO GOs) on the "Mission Analysis Scorecard" [slide#25].

4. Bin Team reviews the final tally on the scorecard and Bin Leader makes final decision on the recommendation. For example, if there are "NO GOs," Bin Leader will decide if the NO GOs are compelling enough to recommend a *Not Support*, *Cancel*, or *Suspend*.

   - At the conclusion of the Mission Analysis, Bin Leader will make final recommendation: ☐ Support ☐ Not Support ☐ Cancel ☐ Suspend — slide#26 [in preparation for the Scrum]

5. Admin Note: The factors of METT-TC-FLARS will assist the Action Officer, Team, Staff, and Director with all relevant information for the Scrum and beyond.

The "Recommendation" from the Bin Team's Estimate (Analysis) will not always be equal to the "Decision" made by the decision-maker (REF Director).

2

Purpose-Method-End State

PURPOSE — To assist the Bin Teams [and Staff] analyze all relevant factors of ***METT-TC-FLARS*** from a REF perspective in order to develop an informed recommendation to the REF Director.

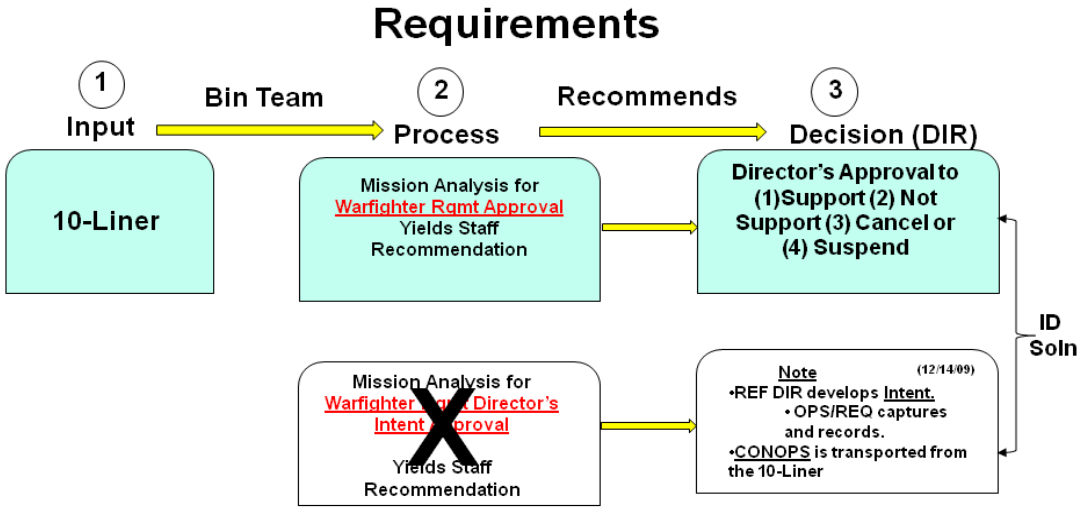
METHOD — Using the REF mission, overall Director's Intent, Purpose, Key Tasks, End State, Binning Concept, Priorities, Scrums, and various informal meetings, formulate a thorough understanding of each ***METT-TC-FLARS*** factor to improve our ability to rapidly provide capabilities to Army forces employed globally.

END STATE — Our goal is to develop a more effective and efficient Mission Analysis of requirements within the REF Enterprise.

The accurate depiction of the environment is necessary for good decision-making. METT-TC-FLARS factors are descriptions of relevant aspects of the environment.

3

Mission Analysis Flow



METT-TC-FLARS

4

METT-TC-FLARS
(11 Factors)

These are the 11 factors we analyze for the REF Mission Analysis.

METT

1. Mission
2. Enemy
3. Terrain and Weather
4. Troops and Support Available

TC

5. Time Available
6. Civil Considerations

FLARS

7. Funding
8. Legal
9. Assessments
10. Redundancy
11. Sensitivity (Ex. Political)

5

METT-TC-FLARS
(Factor 1 of 11)

Mission (slide 1 of 2)

Who:
Unit Name: XBde, YBN, ZCo, _ID
Requestor: Name of Requestor
Unit POC: Unit to Contact
Contact Info: Email Address

Where:
High HQ: _____
Theater: OIF, OEF?
Unit Loc: COP Jump Start

Quantity:
Qty Requested: 3
Qty Bin/Staff Rec: 1
BOIP: 1 per Tower

What is the Effort:
REF Effort: This effort will be a project to procure remote operated bad guy finders.
Tactical Problem: COP Bad Guy Finder is situated in the low ground of the Cake River. The bad guys use the high ground to place their sling shot fires on COP Bad Guy Finders bunkers. COP Bad Guy Finder uses their shield capability to repel the Swing shot pellets as they enter into the COP bunkers. The COP bunkers are struggling to get their shields out far enough to prevent bunker damage. The pellets are typically fired between 800-1000 meters from the COP.
Key Capability Gap: Protect force in sling shot operations.
Warfighting Function: Movement & Maneuver (See backup for definitions of the six WFFs).
Enabling Capability Gap: Soldier Protection in sling shot environment.
Origin of Requirement: Who originated this requirement? It's either A, B, C, D, or E
Projected Solution Bin: Bin 1 (Simple COTS/GOTS), Bin 2 (Modified COTS/GOTS), or Bin 3 (Prototype Development)

6

METT-TC-FLARS
(Factor 1 of 11)

Mission (slide 2 of 2)

When:

NET 12 Jan 10 Reason Unit does not wish to receive equipment within 60 days of their RIP/TOA.

NLT 30 Jan 10 Reason Allows unit to maximize capability for the entire winter season.

RIP/TOA date and Unit _____

How:

Executive Agent REF Reason REF initiated and funded

Partners PM-Crew Served Weapons Reason PM has SMEs who can assist with shielding development of solution.

Stakeholders JIEDDO Reason JIEDDO is working a similar effort but will take 12 months to gain an understanding on the product

FACTOR SCORECARD

Criteria	GO	NO GO
This request enables/enhances mission accomplishment.		

7

METT-TC-FLARS
(Factor 2 of 11)

Enemy
(slide 1 of 2)

1. What type of Enemy weapon system is being used and how is it being employed? What are the particular threats or vulnerabilities?
   - ☐ IED: CWIED, RCIED, VOIED, HBIED, PBIED, VBIED, SVIED
     - ☐ Home-Made Explosive (HME)
     - ☐ Military munitions
   - ☐ Small Arms Fire, Indirect fire, Sniper Fire, other, etc.
2. If counter-IED, need to be able to articulate the key components. (net-explosive weight, trigger, power source, casing, emplacement method, etc.)

8

3. Is this10-Liner in response to a change in enemy TTPs?

METT-TC-FLARS
(Factor 2 of 11)

Enemy
(slide 2 of 2)

4. Will the enemy situation be the same by the time this 10-Liner is approved, worked, shipped, and available for employment at the unit's location?

5. How does this effort get ahead of the enemy's decision cycle?

6. How will the enemy counter this capability if equipped?

7. How would this impact the National Strategic Intel Community?
   - (SIGINT might involve NSA, spectrum management, etc)

FACTOR SCORECARD

Criteria	GO	NO GO
This request counters or mitigates pertinent enemy threats.		

9

METT-TC-FLARS
(Factor 3 of 11)

Terrain and Weather

1. Seasonal weather effects (ex. Effects on Enemy OPTEMPO, Hydrology, Temperature, Precipitation, etc.)
   Hydrology - The scientific study of the properties, distribution, and effects of water on the earth's surface, in the soil and underlying rocks, and in the atmosphere,
2. Elevation effects (may impact equipment performance)
   Elevation - The altitude of a place above sea level or ground level.
3. Status of lines of communication and infrastructure (air, ground, sea, communications, etc.)
   LOC - Route that connects an operating military unit with its supply base.
4. Visibility and Illumination effects
   Visibility - The capability of providing a clear, unobstructed view.
   Illumination - A source of light.
5. Urban vs. Rural considerations (OCOKA analysis)
   1. Observations and Fields of Fire
   2. Cover and Concealment
   3. Obstacles
   4. Key Terrain? (Include population)
   5. Avenues of approach

FACTOR SCORECARD

Criteria	GO	NO GO
This request is appropriate for the [1]Topography and [2]Climatology conditions of the AO.		

10

[1] Refers to the "lay of the land", or the geographic characteristics of land in terms of elevation, slope, and orientation.

[2] Study of climatology involves weather information showing moment to moment states, seasonal changes, the long term effects of weather and how climate changes over time.

METT-TC-FLARS
(Factor 4 of 11)

Troops and Support Available (Friendly)
(slide 1 of 3)

1. Type Unit

Component	☐ Active	☐ Reserve	☐ National Guard	☐ Joint / Other _____
Unit used REF before?	☐ Recurring Customer	☐ First-time Customer		
Functional Task of requesting unit?	☐ Movement & Maneuver	☐ Intel	☐ Fires	☐ SOF
	☐ Protection	☐ Command & Control	☐ Sustainment	☐ Other _____

2. Sustaining actions to support unit (examples):

☐ FSR ☐ Tiger Team ☐ Facilities ☐ More people ☐ CTR ☐ Secure Real Estate ☐ Other _____

3. Size of unit:

☐ Squad (4-10) ☐ Plt (16-40) ☐ Co (100-200) ☐ Bn (500-600) ☐ Other _____

☐ BCT (3-5K) ☐ Div (10-18K) ☐ Corps (2-5 Div) ☐ Theater Command/COCOM HQs

11

METT-TC-FLARS
(Factor 4 of 11)

Troops and Support Available (Friendly)
(slide 2 of 3)

4. Type of vehicle unit: ☐ MRAP ☐ Strykers ☐ Up-Armored Humvees ☐ Other _____

5. Is the requirement in line with the functional mission of the unit?

☐ Yes ☐ No ☐ Partially and why _____

6. Disposition – where will the equipment really be employed? _____

7. What is the magnitude of this request? Is this mission critical, mission essential, mission enhancing? [A "nice to have" vice a "need to have"]

8. Do we have a feel for this request? [unit personality/sincerity of request]

☐ Probably strong, unit wants it, due to unit losing someone or had someone wounded; desires situational awareness.

☐ One of multiple requests from same Unit [consider time here too].

☐ REF Director is requesting (It's an A1, A2, or A3).

☐ A good Idea from someone.

☐ Result of REF interaction: REF Director, SGM, OST, lab, etc. Conversation may lead to a possible unintended solicitation.

☐ Vendor-initiated.

12

METT-TC-FLARS

(Factor 4 of 11)

Troops and Support Available (Friendly)

(slide 3 of 3)

Director Quote: "REF does not bend metal."

(REF must partner in some way for everything we do)

12/15/09

9. **Partners (who is the REF working with to make this happen)**

- ☐ PEO
- ☐ OGAs
- ☐ PM(s)_____
- ☐ ATEC
- ☐ TRADOC
- ☐ RDECOM
- ☐ CTCs
- ☐ JIEDDO
- ☐ AWG
- ☐ AMC
- ☐ Labs
- ☐ ARSTAFF
- ☐ OSD
- ☐ Cong
- ☐ Services
- ☐ Other _____

FACTOR SCORECARD

Criteria	GO	NO GO
Sufficient forces, with the requisite training, equipment ,and capabilities, are available to support request.		

13

METT-TC-FLARS

(Factor 5 of 11)

Time Available

(slide 1 of 2)

1. **Where is the unit in its deployment cycle when the requirement enters the REF process?**
   (1) Predeployment _____ (2) Deployed _____ (3) Redeployment _____
2. **When did the unit arrive in theater (if applicable)? ____**
3. **How many months from today does the unit still have in theater {8, 10, 1}? ____**
4. **How long do we estimate from requirement approval to unit receiving the item? ____**
5. **How much time will the unit have to employ the equipment while they are still in theater? ____**
6. **Does the amount of time the unit will be able to employ the equipment justify the requirement approval? (Employment time short - 1 or 2 months)**
7. **If we have a long lead-time for the equipping, do we know if the follow-on unit replacing the unit will want this equipment? If so, is the follow-on POC the CDR or unit representative, such as the Master Gunner or equivalent?**
8. **If so, what actions will the REF take to ensure follow-on unit stays engaged with us?**

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METT-TC-FLARS

(Factor 5 of 11)

Time Available

(slide 2 of 2)

9. Is there a seasonal effect to the timeline?
10. How will the impact of the recent President's "Surge" increase of 35,000 soldiers impact our REF process? Examples may include: Transportation assets? Labs? R&D priority? CTCs, Real Estate, etc.
11. Will the brigade/unit requesting the item be impacted by any change in strategy, so they may not have a bonafide need at time of equipping (Change of physical location, mission, task, etc.)?
    - SA on OIF Retrograde – Does mission change; different than today?
    - SA on OEF troop increase – How will the impact be with increased footprint?

FACTOR SCORECARD

Criteria	GO	NO GO
The timeline for this request is realistic, feasible, and cost effective. Requirement is in line with RIP/TOA and/or follow-on unit.		

15

METT-TC-FLARS

(Factor 6 of 11)

Civil Considerations

1. What are the possible effects on the relationship between military forces, civil authorities and the civilian population in the AO concerned? Is there a conflict with local law, religion or cultural standards?
2. What is the effect of US or Coalition labor, procurement, or contracting commodities on the local population, economy and governmental services?
3. Does this action require coordination with other government agencies (OGA), intergovernmental organizations (IGO), nongovernmental organizations (NGO), indigenous populations and institutions (IPI), and the private sector?
4. What is the possibility of dislocation of civilian population, damage to facilities or infrastructure requiring military assistance, especially in areas of public health, DC care and control, civilian supply, public safety, transportation, and humanitarian relief?
5. How does this request affect strategic communications, Information Operations and media?

FACTOR SCORECARD

Criteria	GO	NO GO
This request reinforces collaborative relationships among mil forces, civilian org and auth, and the civ pop in order to facilitate mil ops.		

16

METT-TC-FLARS
(Factor 7 of 11)

Funding
(slide 1 of 2)

1. Does it appear that the request will be exorbitantly expensive for the REF?
2. Do we have sufficient funds now or will we have to defer pending availability of funds?
3. Is this item doable at this time? In other words, are we at the end of the fiscal year (FY) and may be required to wait for new FY money?
4. Have we done this before?
5. Do we have an existing Contract?
   - If so, is this contract an Indefinite Delivery/Indefinite Quantity [IDIQ] contract?
   - What is the ceiling on this contract and where are we now? {Ex. IDIQ is 1000 and we are at 900 now}
6. Ask the Contract specialist on the Bin Team to estimate how long the award may take.
7. Are we using someone else as our Contract Vehicle?
8. Is this 100% REF funded, will we share the cost, or will it be funded by someone else?

17

METT-TC-FLARS
(Factor 7 of 11)

Funding
(slide 2 of 2)

9. Is this a COTS/GOTS item? If yes, most likely "OMA" will be type [color] of money.
10. Are we planning to modify?
11. Are we planning to get this item from a PM?
12. What is the rough order of magnitude for total cost?
    - What is the estimated cost per item?
13. Do we have to buy {procure} the entire quantity requested now or can we buy in increments (Ex. Some this month, some next month and so on)?
14. Are we using the right type [color] of money? Cannot incrementally fund a request if the intent is to avoid exceeding the appropriation threshold [Potential Anti-Deficiency Violation]
    - [Purpose - Time - Intent]
15. Does not violate Berry Amendment?

Note: See slide #29 for definition.

FACTOR SCORECARD

Criteria	GO	NO GO
Funding and Contracting for this request is available, practical, and fiscally responsible.		

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METT-TC-FLARS

(Factor 8 of 11)

Legal

REF Five (5) things that will not be violated:

1. **Immoral** No____ Yes____
2. **Illegal** No____ Yes____
3. **Stupid or just dumb** No____ Yes____
4. **Exorbitantly expensive** No____ Yes____
5. **Unethical** No____ Yes____

Note: In the cases above, we should consider the Berry Amendment, ADA Violations, ROEs, Proportionality, SOFA, Title 10, IG interpretations, and International & Host Nation laws.

Caveat: The REF may say the capability being requested is unsafe for the unit, but the Unit still informs the REF they want the item(s) (COTS/GOTS). In this case, we need to ensure we conduct a risk assessment. Could be we recommend an incremental approval [in this case]? If so, we need to go back to METT-TC-FLARS and weigh overall REF risk in such areas as Sensitivities [External Repercussions], Soldier safety, REF mission, etc.

FACTOR SCORECARD

Criteria	GO	NO GO
This request is legal-no question.		

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METT-TC-FLARS

(Factor 9 of 11)

Assessments

1. **Have we done this before? No____ Yes____**

   - **If yes, what was the assessment?**

2. **If the REF has not done this requirement before, do we know if this capability was equipped by someone else and do we have their assessment?**

FACTOR SCORECARD

Criteria	GO	NO GO
Assessments support this request.		

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METT-TC-FLARS

(Factor 10 of 11)

Redundancy

(slide 1 of 2)

1. Have we done this before? No____ Yes____
   - If yes, what decision did the REF Director make?
   - Do we have the assessment of previous effort?

2. If the REF has not done this requirement before, do we know if this capability gap was previously requested and not supported [by anyone else]?
   - If so, what was the reason for non-support?

3. Are there existing efforts currently or previously ongoing with another organization (Ex. PM)? If so, should we ask this organization/PM/etc. to assume ownership of this requirement and/or partner with us?

4. If an item has been requested multiple times (Ex. Green Lasers, Quiet Pro), this item may need to be considered for entry/consideration into a Program of Record (POR). As a point of fact, PEO-S is considering Quiet Pro as a POR, but is this going to be Army-wide and when? Depending on the PEO timeline, we may consider approval of the 10-liner if the Army fielding may take longer than the unit can wait.

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METT-TC-FLARS

(Factor 10 of 11)

Redundancy

(slide 2 of 2)

5. Is there an ONS or JUONS existing (Tracking#, Requesting Org, Qty) that may be attempting to fill this requirement [and the unit is simply using multiple channels to fill the gap]? If so, what actions do we look into and what do we recommend to the Director?

6. If the REF equips and an ONS is in the pipeline, do we notify G3, so the quantity can be reduced [or some other pertinent info to the ONS]? Technically, the REF is fulfilling some of the effort being requested on the ONS/JUONS [bridging strategy]

7. Could we cross-level the equipment in one theater and move to another to fill this gap?
   - If so, what is the process and timeline?

FACTOR SCORECARD

Criteria	GO	NO GO
Neither the REF nor another organization is addressing or has addressed this request.		

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METT-TC-FLARS

(Factor 11 of 11)

Sensitivity (Ex. Political)

(slide 1 of 2)

1. **Will this be an item that the Director may view as "Thou Shall Not" within the scope of the REF mission? Examples may include Weapons, Vehicles, Body Armor. Note: This does not mean we do not continue the mission analysis, but need to be sensitive to this.**
   - **Will this requirement cause such an unnecessary strain & burden on the REF that the payoff may not outweigh the repercussions?**
   - **Have we ever done anything close to this before that caused unintended consequences for the REF?**
2. **Is there Congressional language, OSD input, or Army directive/guidance that may specify or imply that this requirement request not be supported? If so, what is the language or directive that states this fact/opinion?**

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METT-TC-FLARS

(Factor 11 of 11)

Sensitivity (Ex. Political)

(slide 2 of 2)

3. **Is this simply outside the scope of the rapid acquisition business? It may be a great requirement, but should be passed on to a more 'appropriate' office that fill this gap.**
4. **Is there another organization that we should inform, partner, pass to, or consider in any way, before we proceed [PMs, PEOs, (ASA)ALT, RDECOM, AMC, JIEDDO, AWG, Services, Departments, Agencies, etc.]?**
   - **Does this directly impact another PM or PEO's program?**
   - **Are we the "quiet professionals?"**

FACTOR SCORECARD

Criteria	GO	NO GO
The level of effort recommended does not violate the REF's "Thou Shall Nots" (Legal factor) and falls within the REF mission. We have analyzed our Mission Scope, Executive Agency responsibility, partnering ties, and all external guidance/directives/language, etc., and do not foresee this requirement causing adverse consequences (e.g. Political, Military, Informational, Geographical, or Diplomatic) for the REF.		

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Mission Analysis Scorecard

Director Requirement Decision

		Comments
1. Mission	GO____NO GO_____	_____
2. Enemy	GO____NO GO_____	_____
3. Terrain and Weather	GO____NO GO_____	_____
4. Troops and Support Available	GO____NO GO_____	_____
5. Time Available	GO____NO GO_____	_____
6. Civil Considerations	GO____NO GO_____	_____
7. Funding	GO____NO GO_____	_____
8. Legal	GO____NO GO_____	_____
9. Assessments	GO____NO GO_____	_____
10. Redundancy	GO____NO GO_____	_____
11. Sensitivity (Ex. Political)	GO____NO GO_____	_____

*Scorecard Instructions: Once all 11 factors of METT-TC-FLARS have been analyzed and scored, Bin Team will consolidate the scores (# of GOs & NO GOs) on the "Mission Analysis Scorecard"

Final Tally: [Place total number of GO and NO GOs] GO____NO GO_____ _____

**See next slide to finalize Bin Team {Leader} Recommendation.*

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METT-TC-FLARS

Recommendation for Director Requirement Decision

Recommend Support: ☐

Reason:
Staff wants Director to approve REF taking on this effort. May have specified caveats [Ex. Reduced qty, Coordination required, incremental funding, Buy/Try/Decide, pending funding]

[Guideline Only]

Recommend Do Not Support: ☐

Reason:
This is 180 degrees from "support." This recommendation says the bin team recommends the requirement not be supported for the following reasons: [Ex. "Not game-changing"].

[Guideline Only]

Recommend Cancel: ☐

Reason:
Requirement no longer is needed. There may be redundancy. Unit has received an advanced solution or from another source. Unit does not want.

[Guideline Only]

Recommend Suspend: ☐

Reason:
Usually means the requirement currently has insufficient information to make a recommendation. Could be due to funding, coordination delays, conditions-based, etc.

[Guideline Only]

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METT-TC-FLARS

•At this point, the Bin Team Mission Analysis for this requirement is complete
  • Bin Leader has enough info to make informed recommendation.

•Bin Team continues same process until analysis for each incoming 10-Liner requirement is complete.

•Once all requirements are analyzed, Bin Leader wraps up Mission Analysis and formulates order of battle [5 W's] for the Scrum (decision brief).

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